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## Analysis of data -based decision-making: The perceptions and roles of teachers and administrators

Richard Byron Bishop  
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ANALYSIS OF DATA-BASED DECISION-MAKING:  
THE PERCEPTIONS AND ROLES OF TEACHERS AND ADMINISTRATORS

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A Dissertation

Presented to

The Faculty of the School of Education  
The College of William and Mary in Virginia

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In Partial Fulfillment

of the Requirements for the Degree

Doctor of Philosophy

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by

Richard Byron Bishop

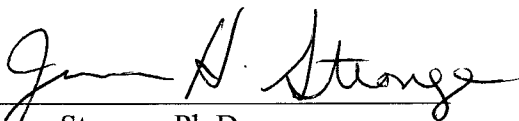
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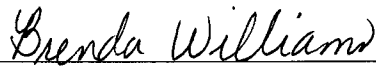
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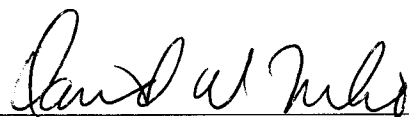
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## DEDICATION

This is to the ones who have never known me when I have not been in school. They are the ones that put this into perspective. I hope I will make as positive an impact upon their lives as they have on mine. Thank you to my youngest teachers, my daughter, Logan, and my son, Aidan.

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ANALYSIS OF DATA-BASED DECISION-MAKING:  
THE PERCEPTIONS AND ROLES OF TEACHERS AND ADMINISTRATORS

Abstract

Educators are required by federal and state mandates to use data in order to improve student achievement and teacher performance in public schools. The public's faith in public schools is dependent upon the school organization's ability to respond to the data and to make changes that will improve schools. The perceptions of members of the school organization regarding barriers and facilitative strategies that either hinder or promote the effective use of data, respectively, inherently impact the effective use of data. The purpose of this study was to examine the perceptions of school staff members regarding the use of data to make educational decisions.

Although the use of data to make informed decisions to improve an organization's capacity to reach defined goals holds promise, the process of implementing an organizational structure and developing a culture and climate that facilitate the use of data within the public schools presents challenges. This study showed that although the respondents generally agreed that the school and/or district had the cultural components to facilitate greater student achievement, barriers existed that limit the most effective use of data within the organization.

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DATA-BASED DECISION-MAKING:  
THE PERCEPTIONS AND ROLES OF  
TEACHERS AND ADMINISTRATORS

## Chapter 1: The Problem

### Introduction

Our collective educational history has been a series of reforms and movements with the intention of shaping and improving our schools. With every reform effort, new pressures on educators intensify. In our schools, however, there has been resistance to making meaningful changes even as reform movements have come and gone (Consortium on Productivity in the Schools, 1995). The previous failed efforts to improve our schools may have come from our inability to make clear what we intend to achieve (DuFour & Eaker, 1998). Educators have not measured what schools are doing with the results of students' performance (Schmoker, 1999). More specifically, most schools do not deliberately examine the performance of the child and adjust instruction and programs accordingly (Schmoker).

Recently, however, we have become a nation where standards and accountability are the foci in education, which has brought data on student performance to the foreground. Accountability systems have increased public awareness of schools' effectiveness (Holcomb, 1999). Further, the high-stakes accountability systems implemented through federal and state policy makers have focused the attention of educators to reach performance targets (Armstrong & Anthes, 2001). "Recent policies at the federal, state, and local levels have served to bring data use to the fore" (Wayman & Stringfield, 2003, p. 2). In the era of standards and accountability, there has been more data on student progress than ever before (Jandris, 2001). With more data on student progress available, there is a greater public force to change in order to positively impact those results. The public's faith in the educational system is dependent upon the school's

ability to respond to the changing world (Levin & Riffel, 1997). That is, a school can use data to make informed decisions that effectively and efficiently improve student learning (Bernhardt, 1998) and, thus, impact society's perception of the quality of public education. It is evident that the integration of data into the decision-making process leads to better decisions (Protheroe, 2001). More important, however, is how the data are used in a seemingly complex process (Protheroe).

How data are used and perceived by the members of a school organization impacts whether the data are used effectively to make decisions (Holcomb, 1999). In other words, the engagement of people within the process of school improvement is critical to success (Holcomb). In order for data to be used purposefully a shared understanding of the data is necessary (Love, 2003). Therefore, the perceptions of teachers and administrators regarding the use of data may impact the effectiveness of the decision-making process. The purpose of this study was to examine the perceptions of school staff members regarding the use of data to make educational decisions.

The use of quality principles in education (Arcaro, 1995), systems theory (Senge, 1994), the effective schools movement (Edmonds, 1982; Lezotte, 1992), and learning communities (Cibulka & Nakayama, 2000; DuFour & Eaker, 1998) have attached a renewed importance to the use of data in schools to improve student achievement. These constructs also share a commonality whereby collaboration, teamwork, and a common mission allow for effective use of data.

W. Edward Deming's Total Quality Management (TQM) principles were first applied to the business world, but can be applied to schools to improve student achievement and teacher performance (Senge, 1994). The process of continuous

improvement associated with industrial reformers, such as Deming, depends upon monitoring progress using outcome data (Cromey, 2000). TQM as used in education is a systematic approach where interdependence, flexibility, and partnership among administrators, teachers, parents, and students lead to organizational competence (Donaldson, 2001). An organization using the principles of TQM continuously examines data in order to problem solve (Donaldson). According to Deming (1989), identifying problems is necessary in order to understand errors and make change. Similarly, school culture that uses data to make decisions that impact instruction is able to assess the results of its efforts and account for progress toward organizational goals (Donaldson).

The quality movement is a precursor to systems theory. In *The Fifth Discipline*, Senge (1994) described a learning organization based upon definable traits. Through systems thinking the learning organization examines its relationship to the larger context by using data and information (Senge). Senge also described the need to see objectively and continually focus upon the gap between reality and the shared vision. This gap called “creative tension,” is made evident by examining data. The importance of learning with a team and challenging the assumptions and biases is an important element of systems thinking (Senge).

The effective schools research has identified the importance of frequent monitoring of student progress to improve instruction and to apply best practices (Lezotte, 1992). Thus, use of a variety of data, not only to assess students, but also to evaluate instruction to support student learning, was correlated with effective schools (Block, 1983). The use of research by staff to develop and implement approaches to improve student performance is also a part of the collegial approach to learning (Lezotte



& Levine, 1990). Within the framework of the effective schools research there is an emphasis on the democratic nature of a school to empower teachers to become leaders based upon a set of shared values (Lezotte, 1991). School improvement involves the collaborative effort of principals and teachers to analyze documented student outcomes and examine research on effective schools and teaching to improve instruction (Levine, 1986).

The ideas underlying the learning community provide the human and social context that allows the school to use data to improve instruction and student learning (Mason, 2003). Without a sense of community among the staff, a shared understanding and effective use of data is difficult (Love, 2003). The process of improving schools requires the combined work of all stakeholders (Holcomb, 1999). Additionally, the use of data and information to make continuous improvement through reflection and learning is integral component to the success of the school (Mason).

In an era of accountability, data are increasingly important for assessing student progress and improving teacher performance. The ideas behind TQM, systems thinking, effective schools research, and learning communities emphasize the importance of data within a collaborative framework. These constructs are reflected in the collective action of teachers and administrators to use data to improve student achievement. This study explored the perceptions of various stakeholders regarding the use of data within the school to improve student performance.

#### Rationale

Data can serve many purposes in education. This study focused upon the perceptions of essential decision-makers within a school district of the use of data to

make changes that impact instruction and programming. The background of this study shows the importance of data for the decisions of instructional leaders – teachers and administrators. Recent federal and state mandates have held schools and school districts accountable for student achievement through state assessments. The stakeholders' perceptions toward improvement through the analysis and use of this and other data are shown within this study.

The use of data in the current era of standards and accountability is explored to show the need for a comprehensive approach that takes into account data other than solely standardized test scores. A discussion of key stakeholders and their impact upon data-based decision-making follows. A description of the integral characteristics regarding the process of using data to make informed systemic decisions provides a context for effective data-based decision making and illustrates strategies that facilitate the use of data.

### *Data Purposes*

Schools are inherently tied to the health and vitality of the community they serve and, thus, both citizens and policymakers expect schools to justify their effectiveness. Resources are given to schools with the expectation that the stakeholders will receive something in return. Schools are, thus, held accountable just as the students in the schools are held accountable. Data can be used to justify or discredit school practices and programs (Love, 2001).

The use of data to justify the existence of a school or the progress of students is just one part of the equation. Data can also be collected and analyzed to demonstrate the need for change in an effort to improve education (Love). That is, data can provide an

effective means to determine the strengths and weaknesses in student knowledge and skills and, thus, guide how instruction can be improved and/or altered to gain better results. In addition, data can be used to develop curriculum that correlates to student learning objectives and to develop interventions to identify student and teacher strengths and weaknesses (Impara & Plake, 1996). In order for change to occur, however, the need for change must become visible through an evaluation of current practice (Busher, 2002).

The federal government, states, district superintendents, and principals impose mandates to assess students and schools in order to formulate actions and strategies to make improvements. Through the federal government, independent accreditation organizations, division strategic plans, and individual school improvement plans, schools are being held accountable for the quality of education they provide to society's children.

Intuition is one method to assess instruction and programming, but using data to extrapolate and disaggregate what and how individual groups are learning, what stakeholders believe are the strengths and weaknesses of the school, or even how teachers perceive the need for professional development is more powerful and telling (Schmoker, 1999). Data can be used to explore the many facets of a school and make improvements that can be measured and assessed. The questions a school asks regarding what is to be measured and assessed is an initial step in the process of using data to make change.

### *Data Inquiry*

The process of using data to improve student learning involves defining what a school needs to know about factors impacting student performance and collecting the data that are defined by those questions. This process of defining what impacts student achievement and performance requires the input of the stakeholders within the school

community (DuFour & Eaker, 1998). Once a district or school has an understanding of what it wants to know, the next step is to determine if the data are available to find the answers (American Association of School Administrators [AASA], 2002). Bernhardt (1998) noted that an important part of the process of finding useful data is to ask many questions and continue to uncover information and revisiting the original hypothesis. As more stakeholders within the organization search for answers, more questions are developed (AASA). In a spiral fashion questions are formulated, and data are collected to answer those questions; through that process, more questions are formed, and so on. As schools and school systems work through those developing questions, patterns and trends may emerge.

Schools must first start with asking questions about what they believe impact students' performance. Bernhardt (1998) listed questions that focus the efforts in the early stages including identifying the purpose of the school, standards, benchmarks, performance of the students, the vision of the school, and the data needed in order to make an assessment. According to the AASA (2002), asking specific and clear questions is important. As a staff begins with analyzing data, it is important to limit the number of questions and data in order to prevent the staff from being overwhelmed (AASA). Involvement of the school community is critical to define the school's specific needs (DuFour & Eaker, 1998). As each school and district has its own needs and characteristics, each will also have its own questions to ask and, thus, its own data to collect. Therefore, there is not a standard set of questions to measure performance or a given set of defined data to collect.

### *Data Analysis*

Data that are an integral part of assessing a school's effectiveness are those that reflect student performance. Student performance is measured with many different indicators including statewide testing, attendance rates, graduation rates, and rigor of coursework. That data can then be viewed on many different levels. It can be viewed as aggregate data seen as one broad statistic, or it can be broken down or disaggregated. Under the No Child Left Behind Act the results of "annual assessments in reading and mathematics for all children in grades 3-8 will be disaggregated for analysis by poverty levels, race, gender, ethnicity, migrant status, disability, and limited English Proficiency" (Educational Research Service, 2003, p. 3). By disaggregating the data in this manner, subgroups can be assessed to determine whether they are achieving the goals set for them. Thus, this federal legislation forces schools to disaggregate data and analyze subgroups individually.

According to the AASA (2002), in order for student performance to improve, it must be defined and measured. Four types of data used to assess the performance of a school are student assessment, student demographics, perceptions of stakeholders, and instructional strategies (Wade). Data can be used to correlate the strengths and weaknesses of student performance and teaching practices (Wade, 2001). According to Protheroe (2001), assessment and instruction are becoming inextricably linked so that assessment data are used to shape instruction. Data are thus disaggregated by objective and skill in addition to the overall scores and used to correlate with quality and methods of instruction delivered in the classroom. Making that correlation involves the administration, but more important, it depends upon the teachers who are implementing

the instructional strategies. The connection between student performance and instructional strategies can be used to create changes within the classroom to increase student performance (Schmoker, 1999).

Although much of the push recently has been toward analyzing student progress through standardized tests, indicators of student achievement can also include employment preparation, citizenship, character, and appreciation for the arts (AASA, 2002). The use of performance indicators is justified by what the community and staff deem to be important. Districts may also use other types of data to assess their effectiveness in many ways other than standardized scores. The data collected and the degree to which a district or school disaggregates the data vary greatly. In the end, however, educators are able to make effective decisions only if the data that have been collected and analyzed are accurate (Johnson, 1997).

#### *Accountability*

Whether schools are able to monitor or change their performance to meet the demands of society has been questioned in recent years (Platt, Tripp, Ogden, & Fraser, 2000). The public may have lost confidence in public education and its ability to adapt to change and meet the demands of an increasingly complex society (Hammond, 2000). The public's lack of faith creates a need for schools and districts to demonstrate their achievements (Holcomb). To date, however, the results of data analysis, however, have been a matter of reporting rather than operationalizing those results to make improvements to instructional practice (Schmoker, 1999).

A recent review of the literature found that even though some school leaders use data as a single-minded approach to raise test scores, schools benefit when leaders use

data to challenge their teachers to improve student learning (Lashway, 2002-2003). That is, when school leadership focuses on one element, such as standardized scores, rather than looking at the many factors that may impact student learning, student performance may not reflect the gains the administration intended.

Federal legislation mandates progress as evidenced through standardized test scores. While schools can work to improve scores, leadership within the school must recognize that the scores are not the only set of data that can be used to evaluate and make improvements in student learning. The notion of accountability rests upon the standardized test scores, but according to Jandris (2001), a comprehensive approach is needed to make meaningful change. This idea of a comprehensive approach leads to the school community as the unit to make changes through shared inquiry and use of data.

#### *Key Stakeholders*

In addition to the building and central office administrators, teachers now are asked to share the burden of the decision-making process for the schools (Creighton, 2000). Within the context of the learning community, three groups – principals, central office administrators, and teachers – are asked to make the majority of decisions that impact instruction (Creighton). Teachers and administrators will be more fully engaged in the process of change and reform if they are encouraged to reflect upon their practice and organization and be availed the opportunities to take risks in order to make change (Fullan, 1998). Faced with many challenges, teachers and administrators are limited in terms of available time, perceived need, and ability to make decisions based on data to solve instructional problems (Bernhardt, 1998). Educators must learn how to use data if the American system of public education is to survive and succeed (Meany, 1991).

Involving administrators and teachers in the process of data-based decision-making is obviously critical. Success has been shown in schools where there has been a combination of teamwork, clear goals, and data analysis (Schmoker, 1999).

The idea of a learning community characterizes the partnership between the key stakeholders. Learning communities emphasize collaboration among teachers and staff rather than bureaucratic or administrative hierarchies to shape the values and expectations of the group (Cibulka & Nakayama, 2000). According to Mason (2003), a learning community is the critical structure that supports the effective use of data by school administrators and teachers. Understanding the perceptions of those groups regarding the use of data will enable stakeholders to create better collaborative structures enabling better decisions to be made with the use of data.

The notion of a learning community is one philosophical and cultural component with characteristics relating to collaboration of school staff:

Effective use of data happens in the context of a robust learning community, where teachers and administrators are crystal clear about their vision and their commitments, relentlessly focused on results for students, collaborative and reflective about their practice. (Love, 2003, p. 16)

DuFour and Eaker (1998) considered “collective inquiry,” whereby the school community is consistently evaluating new methods, as the “engine of improvement, growth, and renewal” (p. 25). Further, Eaker, DuFour, and Burnette (2002) viewed effective learning communities are “research-based” and “data-driven.” It is through a cyclical process of gathering information and acting upon those results that staff is able to collaboratively make change (Brandt, 2003). Educators continue to explore new ways to



enhance school performance in order to improve student outcomes. The team is critical to the process of evaluating the results of actions taken. Overall, within a collaborative framework, professionals perform more effectively (Schmoker, 1999). The use of data within a team structure contributes significantly to the process of school improvement.

### Theoretical Rationale

Systemic reform theory, upon which this study is grounded, is based upon the critical need of stakeholders' contributions within an educational system (Reigeluth & Garfinkle, 1994). Systemic reform theory draws upon many groups such as students, parents, educators, administrators, community members and groups, as well as the state and federal government who are given active ownership for school improvement (Jenlink, Reigeluth, Carr, & Nelson, 1996).

Systems thinking focuses on the need for all the people within an organization to diagnose problems, identify consequences, and reveal necessary changes so that the school community is able to see the complexity of the problem and act accordingly (Senge, 1994). The community and the stakeholders facilitate a consensus of beliefs and common vision that is then developed into action (Jenlink et al., 1996). In other words the idea to viewing the organization and its environment as a whole rather than the sum of its parts is the basic framework of systems thinking (Cummings, 1980). The idea of the significant role the stakeholder groups play in the decisions that impact the school and their need to have ownership and be involved in the process is a key characteristic of learning communities (DuFour & Eaker, 1998). The perceptions of teachers and administrators as contributors to make decisions that impact student learning are a significant element of this study.

Knowledge management theory is the second theoretical basis for this study. This theory is based upon the research of business schools seeking to manage the growing complexity of data, information, and knowledge (Mason, 2003). The use of new methods for organizations to compete and survive is more quickly adapted in the business world than in public organizations. This theory is gaining more acceptance in the field of education (Petrides & Modine, 2003), but schools lag behind business in their performance and their ability to react to the changing climate (Bozeman & Schmelzer, 1984).

However, with the increased demands for accountability and the pressure for school improvement, school districts across the country are beginning to understand the value of effectively collecting and evaluating information (Petrides & Modine, 2003). Thus, schools are seeking ways to transform data into knowledge for effective decision-making and action (Petrides & Modine).

Within knowledge management theory, data and information are transformed into practical knowledge (Thorn, 2000). The effective use of data is the basis of knowledge management (Mason, 2003). The practicality of knowledge management is the use of data in decision-making (Petrides & Modine, 2003).

Knowledge management theory addresses three core organizational resources: (a) the use and integration of technology in planning and assessment, (b) the processes and politics of data, and (c) the people within an organization (Petrides & Modine, 2003). According to Petrides & Modine, “knowledge management in education can be thought of as a framework or an approach that enables people within an organization to develop a set of practices to collect information and share what they know, leading to action that

improves services and outcomes” (pp. 10-11). It is through this framework that data, facts, and quantitative measures become information in the form of reports and strategic plans (Petrides & Modine). Information becomes knowledge, and an understanding is developed by either the individual or the organization that, in turn, encourages action (Petrides & Modine). Thus, data can be used to improve teaching and learning (Creighton, 2001). Many measures can be used together to understand the school’s impact upon student achievement (Bernhardt, 1998). Knowledge management theory within the context of the school demonstrates the value of data to make informed decisions that improve student achievement.

Using data to create and evaluate new ideas sustains the collaborative work of an organization (Fullan, 2003). Without good ideas, the school cannot continue to take action toward improvement. Learning communities are action oriented (DuFour & Eaker). Collectively and individually, teachers need to continuously reflect upon their practice implementing new ideas that work within the school (Fullan, 1998). Effective teachers and administrators develop, test, and evaluate new ideas, theories, and models in a mode of continuous improvement (DuFour & Eaker, 1998). It is the new knowledge of what works best within the school that is the product of thoughtful use of data and information (Mason, 2003). The relationship regarding the collective and collaborative efforts of staff members at every level within a school district and data-based decision-making is evident.

Systems thinking and data-based decision-making frame this study. Using data to inform decisions is important at all levels within an organization (Thorn, 2000), and transforming information into action is critical to the improvement of schools. Decisions

made using data do not have the desired impact if made in isolation from members of the organization. Decisions and actions are made when data are transformed into knowledge that is applicable to the context and purpose of the organization (Mason, 2003). The use of data by an organization to make thoughtful decisions and effective action can lead to better student learning. Understanding the perceptions of the administration and teachers regarding the idea of systemic use of data to make decisions that impact student achievement allows schools to use knowledge for better decision-making and action.

#### Statement of the Problem

With the passage of the No Child Left Behind (NCLB) Act of 2001, a greater emphasis has been placed on the use of data to assess schools. Data are being used to evaluate the performance of historically underachieving subgroups, data are being used to rate schools and school districts. By 2003 the Education and Secondary Education Act required every state to produce report cards that show disaggregated student performance. NCLB has created an enormous quantity of data on student performance. However, it is unknown whether data are used as a reporting mechanism of a school's performance or as a means to assess and improve instruction. If schools are to improve, data must be used effectively to improve instruction, not only as a means of reporting (Bernhardt). Effective schools are using data within the framework of learning communities, organizations, or teams (Bernhardt; DuFour & Eaker, 1998; Holcomb; Mason, 2003; Petrides & Modine, 2003; Schmoker). Feldman and Tung (2001) reported that the use of data-based inquiry in schools impacts the attitude of teachers, resulting in a professional culture where professional dialogue and reflective practice are the norm (cited in Mason, 2003).

Data are necessary for making instructional and curricular decisions that impact a student's education. The use of data can serve to evaluate students' progress, teachers' instructional strategies, as well as the school climate (Bernhardt, 1998). Data can also be used to evaluate and certify that students have met the prescribed curriculum guidelines set by the federal government, a state's department of education, or a regional accrediting body. A school's decision regarding programming, staff development, and the scope and sequence of the curriculum can also be impacted by the thoughtful use of data. Administrators and teachers can use data to make short- and long-term decisions that impact how children are taught.

Data can be seen as a tool to use to make wise decisions. "Clearly, the use of data contributes significantly to the process of learning and improvement in professional communities and learning organizations" (Mason, 2003, p. 6). Whether teachers and administrators purposefully and actively use data to inform decisions is questionable. Thus, according to Cromey, "educators have historically relied less on data to guide their practice than they do intuition, teaching philosophy, or personal experience" (2000, p. 3).

#### Purpose of the Study

The perceptions of members within a school system impact how a school functions. The purpose of this study was to evaluate the perceptions of teachers and administrators regarding the use of data to make educational decisions. Specifically, the perceptions of central office administrators, building principals, and teachers regarding the use of data within their schools were investigated. That is, the beliefs of the three different groups were explored regarding: (a) the perceived inhibiting factors present that preclude the use of data to make decisions that impact learning, (b) the perceived

facilitative strategies that allow for the opportunities to use data, and (c) the perceived needs with regard to better use of data for instructional decisions.

The perceptions of these groups regarding data and its use to improve student learning were compared. A greater understanding of staff members' beliefs can illuminate cultural, organizational, or situational aspects within the system that can help key stakeholders to make changes to improve the effectiveness and/or efficiency of the system.

### Research Questions

1. What are the differences in perceptions between teachers and administrators (building and central office) regarding inhibiting factors, facilitative strategies, and needs with regard to effective use of data to improve student achievement?
2. What are the differences in perceptions among elementary, middle, and high school teachers regarding inhibiting factors, facilitative strategies, and needs with regard to effective use of data to improve student achievement?
3. What are the differences in perceptions between building-level and central office administrators regarding inhibiting factors, facilitative strategies, and needs with regard to effective use of data to improve instruction?

### *Conceptual Definitions*

For the purpose of this research the following terms were used:

Central office administration: Central office personnel who impact or influence decisions that affect instruction, curriculum, and/or programming, including, but not limited to, the superintendent, assistant superintendent, and curriculum specialists/department heads.

Building-level administration: Principals and assistant principals who serve as lead administrators at the school level.

Data: Information for planning and sustaining school improvement. Data include but are not limited to, demographics, standardized tests, attendance, perceptions of stakeholders, teacher assessments, examples of student work, business and community needs, professional research, and problem analyses (Bernhardt, 1998; Creighton, 2001; Love, 2001; Schmoker, 1999). Data are used to reveal opportunities for improvement and to assess progress (Schmoker, 1999). Data can be either qualitative or quantitative for the purposes of school improvement.

Data-driven decision-making: The process of inquiry and analysis of data and the transformation of the data into knowledge that is used to make decisions and actions regarding school improvement or student achievement and challenges.

Facilitative strategies: The method, culture, organizational structure, or resources that allow for staff members to effectively use data to improve instruction.

Inhibiting factors: The barriers or obstacles that preclude the best use of data by staff members to improve instruction.

Learning community: A collaborative team with a set of shared understandings and values that is continuously seeking new ways to improve practice for better student achievement and evaluating what has been implemented through action research and experimentation (Cibulka & Nakayama, 2000; DuFour & Eaker, 1998).

Stakeholders: All school community members, including, but not limited to, administrators, students, teachers, parents, community members, and business partnerships, that impact or are impacted by the school's actions and decisions.

## Delimitations and Limitation of the Study

### *Delimitations*

A delimitation is any factor within the researcher's control that may affect the external validity of the study (Gall, Gall, & Borg, 1999). One factor that may compromise the validity of this study is the decision to select members of one school district to respond to the survey; this factor limits the ability to make generalization applicable to other school districts of differing demographics (Creswell, 1994). The study was also limited by the number of district staff members interviewed. Only individuals who agreed to participate were included in the study.

### *Limitation*

A limitation is anything beyond the control of the researcher that may affect the internal validity of the study (Gall, et al., 1999). The study was limited by the willingness of the participants to provide accurate information when responding to the questionnaire. Because the questions attempted to illuminate the perceptions of the participants regarding data use to improve instruction, the validity is limited by the reliability of their responses.

## Significance of the Study

For an organization to move forward and to use data effectively and collaboratively, the perceptions of key stakeholders that make decisions are important to understand. Teachers' and administrators' perceptions regarding the facilitative strategies and potential barriers that allow them to improve instruction are critical to facilitate an organization that uses data collaboratively and effectively. In this study, the



reasons pertaining to whether teachers and administrators use data to improve the quality of teaching and learning in their school were analyzed.

The perceived obstacles, as well as the facilitative factors that encourage and support the use of data, impact the health of an organization. A clearer understanding of the perceptions of different groups within a school system regarding the use of data to improve teacher performance and student achievement can allow an organization to respond to threats and to emphasize the positive organizational dynamics. The study is significant in that it validates the perceptions of groups and individuals regarding the use of data within a school system and, thus, allows key stakeholders to begin making organizational changes that would allow for better use of data in the school's decision-making processes.

## Chapter 2: Review of Literature

This review of literature presents a context for data-based decision-making within public schools. The first part focuses on the role of data in education for improving student achievement. The process of data-based decision-making and the potential barriers towards implementation are also addressed. Facilitative strategies, or driving forces, are discussed that are relevant to the effective use of data to make decisions within the school and impact student learning and achievement. The role of teachers, building-level administration, and central office administration in the process of using data will be defined. Throughout, this chapter examines theoretical and empirical studies from the research related to the use of data toward school improvement.

### The Role of Data in Education

Many administrators rely on their instincts or intuition to make decisions that impact student learning. Data can replace those hunches with facts (Bernhardt, 2000). “Effective educators make effective decisions based on accurate information” (Johnson, 1997, p. 1), and there are many measures to guide a school toward improvement (Bernhardt, 1998). “Data provide the quantifiable proof, taking the emotion and rancor out of the decision making process” (AASA [American Association of School Administrators], 2002, p.1). Objective information coming from data-driven analysis can be used to justify decisions of leadership and validate the actions of the organization (Holcomb, 1999). It is the means to analyze the impact of instruction or programming on student achievement and confirm or deny the hypothesis formed by a staff determined to improve education (Mann & Shakeshaft, 2003).

Data can also be used to identify the discrepancy between how the school and students are currently performing and where they should be (Killion & Bellamy, 2000). An organization's reaction to this discrepancy is called "creative tension," according to Senge (1994). Creative tension is the recognition of where the organization is and where it wants to be or where it should be. "No real change can be made without an accurate, definitive picture of where the changes need to be made" (Cromey, 2000, p. 9). Fullan (1998) argued that successful schools work hard to uncover problems and to implement interventions to solve them. It is the understanding of the distance between the current profile of the school and the vision the school wants to become that can encourage a school to act (Senge).

Data can also be used to reduce the uncertainty within an organization by identifying strengths and weaknesses (Schmoker, 1999). Clear goals and a means to assess the progress toward the organization's goals allow a school to make better-informed decisions (DuFour & Eaker, 1999). That is, data-driven analysis allows decisions to be based upon objective information that can be measured rather than hunches that reflect subjectivity (Bernhardt, 1998). "Schools that analyze and utilize information about their school communities make better decisions about not only what to change, but how to institutionalize systemic change" (Bernhardt, p. 1). As a school recognizes the gap between what is and what it wants to become through analysis of data, it may be more able to focus energy aligned with a common purpose and a clear understanding of those areas in need of improvement (Senge, 1994).

### Data and Accountability

The accountability movement has impacted how our schools assess children. The current emphasis on using assessment data began with the results from high-stakes tests (Damian, 2000). Norm- and criterion-referenced testing has led to the accumulation of a great amount of data on student and school performance (Jandris, 2001). Federal and state mandates for school reform have required educators to track this kind of student achievement data (Kinder, 2000). Hence, standardized testing is currently the primary achievement data whereby schools are measured (Lashway, 2002-2003).

#### *Data and Student Achievement*

More recently, standardized test scores are used not solely as an end measurement of performance, but also as a means to make improvements in the school. With the passage of the No Child Left Behind Act (NCLB) of 2001, we have seen a greater emphasis on educational research to determine the impact of programs and practices in order to determine federal funding (Pearson, 2003). “Increasingly, educational leaders are turning to a more rigorous collection and use of data to inform decisions and guide sustained improvements in the system so that all students attain higher levels of achievement” (Ready, 2001, ¶ 5).

The new accountability initiatives have placed greater demands on the schools to more effectively assess student achievement (Cromey, 2000). For example, data are being disaggregated to discern different subgroups’ performance (Lashway, 2002-2003). The legislation requires schools to disaggregate scores in terms of ethnicity, disability, gender, socioeconomic level, migrant status, and English proficiency (Educational Research Service, 2003). The disaggregated data can be used to not only assess the

school's ability to meet the needs of different populations, but to also make instructional and program changes that benefit the entire school (Levesque, Bradby, & Rossi, 1998).

Data can be used as a means to identify causes of a problem, not just the symptoms (Bernhardt, 2000). With an understanding of the cause, a staff can begin to act to eliminate the symptom (Fullan, 1998). A recent review of the literature found that, although some school leaders use data as a single-minded approach to raise test scores, schools benefit more when leaders use data to challenge their teachers to improve student learning (Lashway, 2001). The standards and accountability movement has placed a greater emphasis on outcome-based measurements. Those scores, however, can be used not only to grade performance, but can also serve as an impetus to use many other types of data towards school improvement (Levesque, et al., 1998). The use of assessment results to not only evaluate students, but to identify what teaching methods, classroom conditions, and instructional strategies promote student learning is a critical piece of the assessment process (Cotton, 1998). Critical analysis of data can allow a school to focus their actions on improving students learning (Lashway, 2002-2003) by targeting the source of the problem (Schmoker, 1999). In order to confront a problem, however, an organization must be able to identify it through the thoughtful analysis of data (AASA, 2002).

#### *Using a Variety of Data*

Other types of data can be used to determine the results of student learning. Kohn (1993) warned of using data in schools with an emphasis on norm- and criterion-referenced test scores while excluding other important achievement data such as writing, higher-order math skills, or other authentic assessments. Understanding the importance

of many types of data to analyze student performance can help a school make an accurate assessment of student achievement (Bernhardt, 1998). Thus, student scores from standardized tests are but one source of information.

When school leadership focuses on one element, such as standardized tests scores, rather than looking at the many factors that may impact student learning, student performance may not see the gains the administration intended (Jandris, 2001). The notion of accountability rests upon the standardized test scores, but according to Jandris, a comprehensive approach is needed to make meaningful change. Thus, it is important for schools that plan to use data to make decisions about student learning to “assess all of the variables that affect students’ learning and experience” (Daniels & Johnson-Ferguson, 2001, p. 51). To establish a focus and an understanding of school goals, “standardized test results, climate survey results, demographics, and information regarding discipline, attendance, and parental involvement” (Richardson, 2001, ¶16) are some examples of data learning teams can use. Effective schools are using many forms of data and measuring student performance frequently to make instructional decisions that allow children to learn better (Lezotte, 1991).

### *Results and Process*

The results of analysis of data can be used to inform a school about the processes that impact students’ achievement (Schmoker, 1999). Successful schools are concerned with the processes that affect both long-range and short-term goals (Bringham, 1994). By using data a school can brainstorm the possible explanations to ask questions about instruction and curriculum (Richardson, 2000).

Data analysis and using the results to impact the way in which instruction is delivered is a cyclical process (Bernhardt, 1998; Keeney, 1998). It can be seen as a process of continuous incremental improvements at multiple points where data are analyzed to inform decisions (Jandris, 2001). Data can be used to identify the link between teaching practice and student performance so that high achievement levels can be obtained (Miller, 2000). As a school understands the results, it is able to change its behavior and understand the important link between results that the students achieve and the processes that affect those results (Schmoker).

#### *Data Use in Schools*

Although data can be used to improve the quality of education, it is not used as a means to improve education in all schools. According to Creighton (2001), in most schools, data are not used to inform decisions regarding the process of school improvement. Instead, schools look at scores only briefly and then put them away until the following year (Bernhardt, 1998). School leaders seldom are expected to use data to make decisions (Lashway, 2002-2003), and therefore the culture of the school does not embrace it as a means to improve (Holcomb, 1999). According to Schmoker, "We have avoided the difficult though promising task of analyzing what we are doing against the results we are getting" (1999, p. 6). Even with the emphasis on outcome-based measurements, standardized test scores are only reviewed briefly to report progress rather than being used to assess and evaluate the school (Creighton). Standardized test scores can be used not only as a means of comparison, but also as a way to make changes internally to positively impact learning. Many types of data along with the norm- or criterion- referenced tests can be used to broaden the impact on the quality of educational

services that we provide children (Bernhardt, 1998). In summary, “Carefully collected analyzed data represent the key to improvement in education” (Wade, 2001, ¶ 2).

### The Process of Data-Based Decision-Making

“The school did not become what it is overnight and it won’t become better overnight *ever* unless problems are correctly identified, issues defined, and solutions generated that focus on what it is that is getting in the way” (Ubben, Hughes, & Norris, 2001, p. 65). Schools must adopt a data-based decision-making model for this to occur.

The Annenberg Institute has developed a “Cycle of Inquiry” model involving continuous reflection and action (Keeney, 1998). All parts are interrelated and nonlinear; however, the first step is to establish desired outcomes in order to set the foundation for defining questions and setting a criteria for how to assess a school’s achievement (Keeney). Thus, the criteria become the basis for future action. Similarly, according to DuFour and Eaker (1998), a learning community involves a focus on continuous improvement and assessment based on results. A major point within the TQM, another decision-making model, is the constant improvement of production and services (Deming, 2000). Continuous improvement based upon cycles of planning, execution, and evaluation is an objective of the quality improvement (Arcaro, 1995). The importance of data in the cycle of improvement is evident.

### *Inquiry*

Schools must start with asking questions that they believe impact their students’ performance. Bernhardt (1998) lists questions that focus the efforts in the early stages that include identifying the purpose of the school, standards, benchmarks, performance of the students, the vision of the school, and the data needed in order to make an assessment.



Asking specific and clear questions, according to the American Association of School Administrators (AASA) (2002), is important. Posing questions is an important requirement for collecting and analyzing data. Within education, what data to collect is determined by questions about student performance, teacher quality, and the satisfaction of the stakeholders (AASA, 2002). Questions are needed to guide the initial inquiry (Bernhardt, 1998). By allowing an organization to focus their efforts without which there would be no direction (Creighton, 2000). DuFour and Eaker (1998) suggested the need for an organization to question the status quo and seek new methods of instruction in a collaborative process. The coordination of assessment activities allows for teachers and administrators to work together and to avoid duplication of efforts (Cotton, 1995). Such decision-making models may be used to identify the goals and objectives, identify and evaluate alternatives, select the strategy, and then implement and evaluate the strategies.

Thus, the process of using data to improve student learning involves defining what a school needs to know about the factors impacting student performance and collecting the data that is defined by those questions (Bernhardt, 1998). According to Feldman and Tung, “data-based inquiry and decision making is a process in which school personnel (a) engage in ongoing analysis of data from multiple sources to provide a comprehensive picture of a school’s strengths and challenges and (b) develop a plan to prioritize and address challenges” (2001, p. 4). The collaborative efforts of teachers and administrators to focus upon the improvement of teaching and learning by documenting outcomes and disaggregating and analyzing data to monitor quality and equity is an important characteristic of an effective school (Lezotte, 1986). Further, central to the learning organization is the involvement of stakeholders in a collaborative process

(DuFour & Eaker, 1998). According to Schrage (1995), the collaborative process fills the need to solve a problem or create a solution.

### *Collecting Data*

Once a district or school has an understanding of what it wants to know, the next step is to determine if the data are available to find the answers (AASA, 2002).

According to Bernhardt (1998), continually asking questions in the process of uncovering data is necessary to make effective decisions. As more educators search for answers, more questions are developed (AASA). Team learning, according to Senge (1994), is a collaborative inquiry and action based process where an organization can produce greater results than individually. This process involves teachers and administration as learners, who collaboratively work and share success and failures (Cibulka & Nakayama, 2000). Analyzing performance, brainstorming new strategies, evaluating practice and sharing results is characteristic of a collaborative learning organization (Cibulka & Nakayama). In a spiral fashion questions are formulated, data are collected to answer those questions and through that process, more questions are formed (Bernhardt). As the schools and school systems work through those developing questions, patterns and trends may emerge (Bernhardt).

As a staff begins to analyze data, it is important to limit the amount of questions and data in order to prevent the staff from being overwhelmed (AASA). Determining what is important to know about “students’ performance, teacher quality, parent and community satisfaction, and other district goals” (AASA, p. 11) is distinctive to each school. As each school and district has its own needs and characteristics, they have their

own questions to ask and, thus, their own data to collect. Therefore, there is no one set of questions to measure or a given set of defined data to collect.

### *Disaggregating Data*

After data is collected it must be analyzed in order to turn the information into knowledge that will help shape decisions. An integral part of assessing a school's effectiveness are data that reflect student performance. Student performance is measured with a variety of indicators, including standardized testing, attendance rates, graduation rates, and rigor of coursework (Bernhardt, 1998; Holcomb, 1999). Those data can be viewed on many different levels. They can be viewed as aggregate data seen as one broad statistic, or they can be broken down or disaggregated. Under the NCLB act, the results of "annual assessments in reading and mathematics for all children in grades 3-8 will be disaggregated for analysis by poverty levels, race, gender, ethnicity, migrant status, disability, and limited English Proficiency" (Educational Research Service, 2003, ¶ 3). By disaggregating the data in this way subgroups can be assessed to determine whether they are achieving the goals set for them (Bernhardt). An organizational vision that all children can learn is a philosophical necessity if an organization is to change instruction based upon results rather than blame the lack of student progress on external factors (Cibulka & Nakayama, 2000).

According to the AASA (2002), in order for student performance to improve, it must be defined and measured. Four types of data used to assess the performance of a school include student assessment, student demographics, perceptions, and instructional strategies (Wade, 2001). Data can be used to correlate the strengths and weaknesses of student performance and teaching practices (Wade). According to Protheroe (2001),

assessment and instruction are becoming inextricably linked so that assessment data are used to shape instruction. Data are thus disaggregated by objective and skill, in addition to the overall scores and used to correlate with instruction in the classroom (Protheroe). The connection between student performance and instructional strategies can be used to create changes within the classroom to increase student performance.

### Potential Barriers to the Use of Data in Schools

The following is a narrative analysis of the barriers that may impact the effective use of data within a district or school. The description of factors that may hinder or promote the effective use of data does not imply that the barriers are legitimate constructs that would negatively impact data-based decision-making. Because there are an inadequate number of studies to conduct a meta-analysis, the following constructs have been defined due to the frequency and emphasis with which each was mentioned in the literature.

Barriers to the use of data-driven decision-making can be borne from internal and external sources. Barriers can be derived from individual or group perceptions or tangible elements such as time and money. Discussion of the barriers is necessary in order to acknowledge their impact on an organization to make improvements. A review of facilitative strategies related to the use of data for school improvement follows the discussion of barriers.

#### *Lack of Focus*

Without a clear focus on what a school wants to achieve, a staff may become overwhelmed with the amount of data that can be collected (Keeney, 1998). “Having a purpose helps people narrow their focus and leads to greater involvement and

commitment” (Keeney, p. 14). According to Creighton, “Collecting data without purpose is meaningless” (2000, p. 57). Without a target the efforts toward improvement would consist of random acts (AASA, 2002). The vision created through the action of a learning community establishes direction by presenting an obtainable realistic future (DuFour & Eaker, 1998). According to the American Association of School Administrators, many schools and school districts begin their efforts without formulating the questions for what they want to know (2002). This results in an inconsistent and large amount of data that cannot easily be utilized to make effective decisions (Bernhardt, 1998). The local goals identified by the community of stakeholders drive what performance indicators are chosen to assess the performance of the school (Levesque et al., 1996). Data alone become meaningless unless the organization is able to understand what it intends to accomplish and how it plans to accomplish it (AASA). A more limited scope allows the organization to focus its efforts and produce results.

### *Fear*

Many educators fear that data analysis will be used to attack them (Bernhardt, 2000). Some educators view the results of assessment-linked accountability as a means to punish rather than as vehicles for school improvement (Cromey, 2000). Accreditation requirements, the reauthorization of federal funds emphasizing the need for proven programs, public school choice, and vouchers are inherent threats to public schools (Holcomb, 1999). Because data have been used to cast blame on schools, administrators, and teachers, educators may not use data for their own purposes to make instructional improvements (Love, 2001). However,

data-driven decision-making can function as a decision support system rather than a means to impugn teachers (Kinder, 2000). Thus, feedback through a data-driven decision-making model can be used to determine the progress of individual student achievement and help teachers to find ways to meet the needs of his/her students. Rather than use data to punish teachers and administrators, data can be used to help schools make improvements (Schmoker, 1999). Through analysis of student performance, teachers may be able to differentiate instruction or implement interventions to meet individual students' needs or the needs of specific subgroups.

The act of collaboration can act as the basis for support for individual members seeking to obtain the organizational goal (Schmoker, 1999). According to Deming (2000), in order for an organization to work effectively fear must be eliminated and barriers must be broken down between departments. Collaborative groups can offer support and encourage risk-taking among teachers and administrators.

#### *Lack of Time and Resources*

The low priority placed on using data to make decisions for school improvement is evidenced by the governing bodies providing little money, time, or training for the schools to collect and analyze data (Bernhardt, 2000). Without support from central office to the principal, a staff will not be able to use data effectively (Feldman & Tung). Schools committed to using data to guide instruction allocate time for teachers to engage in assessment activities (Cromey, 2000). Allowing staff time to analyze the data and make decisions based upon the analysis is characteristic of schools that show positive results (North Central Regional Educational Lab, 2001). Schools that were effective in

implementing a process of data-based decision-making were committed to providing time to teachers (Feldman & Tung). Time and resources were also found valuable to continue the focus upon data to improve student achievement (Noyce, Perda, & Traver, 2000). Tangible elements, such providing financial backing to purchase software to analyze results and allocating time to examine the data in order to make decisions that reflect the findings, are evident when a district supports data-analysis (Feldman & Tung). Further, technological resources used to manage data were found to be important among high performing teachers and administrators (West & Macharia, 2001).

#### *Lack of Emphasis*

Intangible elements, such as a culture, can be developed so that the use of data in decision-making is supported, and those who are actively using data to make decisions are acknowledged. Often teachers do not have access to the data and therefore cannot become involved in the process (Love, 2003). Creating a culture that uses data for problem solving and knowledge building was identified as a challenge to schools in a study by Mason (2003). Teachers wanted incentives and support to use data for instructional, professional and continuous improvement (Mason). The learning community emphasizes results and assumes the importance of using data to continuously assess progress towards organizational and individual goals (DuFour & Eaker, 1998). If the school or district does not give data analysis a priority in decision-making, it is unlikely that it will be used to make improvements in the school.

#### *Lack of Training*

Another barrier is the fact that school-based educators lack the training, equipment, and time to effectively collect data to make decisions (Bernhardt, 2000).

Creighton (2001) noted a lack of training in the preparation programs for administrators and teachers. Emphasis on the day-to-day use of statistics relevant to school improvement is necessary for teachers and administrators to be able to use data to support decisions. Teachers and administrators do not routinely receive formal or technical training to apply assessment data to instruction (Cromey, 2000). Polnick and Edmondson (2003) found that principals received little training to make informed decisions using data, analyzing data, and reporting data. Once administrators were trained and actively using data to plan and improve instruction, however, they were able to understand important assessment indicators (Khanna, Tousdale, Penuel, & Kell, 1999). Cawelti and Protheroe (2001) also found that training was needed to maintain the focus upon data in schools that were already considered data-driven. In a study by West and Macharia (2001), skills in assessment, managing, analyzing and using data for teaching and learning were found to be essential in leaders who were expected to foster highly data-driven school improvement plans.

The process of using data to make informed decisions begins slowly without an informed leadership (Feldman & Tung, 2001). Feldman and Tung found in schools implementing data-based decision-making that lack of expertise and training of school staff was a major barrier. "Although many educators embrace the notion of becoming more reflective practitioners, few educators have the preparatory background to engage in such analysis and reflection" (Wayman, Midgley, & Stringfield, 2005, p. 2). Mason (2003) found teachers desired greater training to ask better questions and to interpret and use the results. Edwards, Lyons, & Jost (1997) found that teachers who received training on accessing the district's database impacted the school site by making instructional



modifications and encouraging site-based decision-making. Teachers and administrators are considered learners within the culture of a learning community (DuFour & Eaker, 1998); therefore, training at all levels is important (Bernhardt, 2004). Knowledge of the process of data-analysis to inform decisions is as important as the information that comes from it. Systems theory recognizes the importance of the process involving key stakeholders and the value of information that impacts the organization's effectiveness.

#### *Relationship Between Researcher and Practitioner*

In the field of education a fundamental gap exists between researcher and practitioner. If the researchers' findings make their way to the practitioner, the findings are often poorly understood, not responsive to the daily needs of the classroom teacher, or delayed so as to make them unpractical (Pearson, 2003). The challenge is to establish an accessible and accepted body of knowledge that the practitioner can apply and make relevant to the individual needs and concerns at the building or classroom level. A barrier exists among educators regarding the overwhelming lack of knowledge of occupational advances within their own field (Schmoker, 1999). Collaboration between practitioner and researcher may positively impact the work of both. Practitioner may be able to influence the priorities for research projects that would be relevant to the classroom. The researcher may be able to impact the work of the practitioner.

A characteristic of a learning community, according to Brandt (2003), is the exchange of information with key external sources in order to learn from each other. Effective research not only comes from analyzing the individual classroom, building, or community level concerns, but applying those findings to the research and theory that would be used to develop strategies and interventions to address those contextual

concerns (Brandt). Working at both levels is a characteristic of a reflective practitioner.

Both can work together to make informed decisions about improving the school.

### *Lack of Face Validity*

“Face validity refers to what a test appears to measure, not what it actually does measure” (Cromey, 2001, p. 4). It is critical to use data that measures what it is intended to measure in order to accurately guide the school’s decisions (North Central Regional Educational Lab, 2001). If they perceive that data are not valid, teachers and administrators are less likely to use it to make decisions. According to Cromey, teachers and administrators deem the data provided from standardized tests as “invalid and untrustworthy because they were not perceived to accurately measure the achievement of their students” (p. 4). How a teacher perceives the validity of data from large-scale assessments influences how the teacher used it to improve instruction (Cromey). Data from standardized test-scores do not typically lead to local improvements because teachers do not feel that the data can readily assess their own performance (Levesque, et al., 1996). Although teachers are faced with the pressure to improve test scores, they believe that the scores are not helpful to improve instruction (Khanna, et al., 1999). Educators rely then upon school-based assessments because they are believed to test what the teachers taught. Therefore, the results from standardized assessments, although they are the means by which schools are judged, are not used as the primary means to make change within the school.

### *Bias*

Another barrier includes the perception that the data are subjective. The connotation of “data” is that it is objective information. However, data can be used to

further personal goals. Findings can be misinterpreted to support political agendas in the education arena (Pearson, 2000). Rather than simply disregarding evidence, groups or individuals can “subtly and carefully ‘massage’ the evidence to make it consistent with their expectations” (Gilovich, 1991, p. 53). “Although people consider their beliefs to be closely tied to relevant evidence, they are generally unaware that the same evidence could be looked at differently, or that there is other, equally pertinent evidence to consider” (Gilovich, p. 81).

The postmodern view of research assumes that all research reflects the biases of the researcher (Pearson, 2003). Research is inherently subjective from the moment the initial questions are formulated (Patton, 2002). The lack of data use in schools may be attributed to teachers’ perception that the data are collected for someone else’s purposes (Levesque et al., 1996).

#### *Need to Overcome Potential Barriers*

The value of data to inform and make decisions that impact school performance and student achievement is evident. Without a clear understanding of where we are and goals for what we want to become, plans cannot be clearly drawn. Data, as described here, can provide a school with a clear picture of strengths and weaknesses, which in turn may be used to illuminate the path toward improvement.

Prevalent barriers may prevent a staff from embracing the process of data inquiry and using the data to inform decisions. Leadership on many different levels can be used to overcome those barriers and create a climate whereby stakeholders are committed to the process. How educators lead the school community to overcome those barriers will ultimately impact the progress of the school and the achievement of the students. Table 1

reflects the major barriers documented across the literature toward data use for school improvement previously described.

Table 1

*Summary of Potential Barriers for Data Use in Schools*

Author	Lack of focus	Fear	Lack of Emphasis	Lack of Training	Lack of Time	Lack of Resources	Bias	Lack of Face Validity
American Association of School Administrators, 2002	X	X		X				
Bernhardt, 2000		X	X	X		X		X
Creighton, 2000	X			X		X		
Cromey, 2000		X	X	X				X
DuFour & Eaker, 1998	X		X	X				
Gilovich, 1991							X	
Holcomb, 1999		X	X	X	X			
Jandris, 2001			X	X	X			
Keeney, 1998	X			X		X		
Love, 2001		X						
North Central Regional Educational Laboratory, 2001	X		X		X	X		X
Pearson, 2003							X	
Schmoker, 1999		X	X					

Facilitative Strategies

According to Covey, “Only the organizations that have a passion for learning will have an enduring influence” (1996, p. 149). It is the learning organization that creates and expands the capacity its staff to create desired results that will be the most successful (Senge, 1994). The effectiveness of the school depends upon how the school is organized to learn (Mason, 2003).

Strategies related to data processes, inquiry, analysis, and decision-making will be described as they relate to greater effectiveness in the use of data for school improvement. Characteristics of schools described in the literature pertaining to learning communities, effective schools research, and research regarding data-based decision-making in schools form the basis for the facilitative factors to be discussed. Specifically, the following facilitative strategies will be discussed: systemic effort, mission, vision, values, collective inquiry, collaboration, action and experimentation, continuous improvement, focus on results, and leadership.

### *Systemic Effort*

Holcomb (1999) discussed the importance of engaging people in school improvement and using data to monitor progress. The process to strategically plan begins at the governing level and requires the involvement of all groups affected (Marazzo, 2003); it must be open to all participants (Holcomb). State, regional, and local bodies have not been able to use data effectively (Bernhardt, 1998). Conditions for effective use of data includes integration of programs and instruction with assessment data (Jandris, 2001). Few schools use a process of data-based inquiry and decision-making that includes the whole faculty (Feldman & Tung, 2001).

A universal expectation at every level is needed in order to create change (Schmoker, 1999). Research conducted by Feldman and Tung (2001) found that schools that effectively implemented data-based decision-making created a culture of inquiry throughout the school. Deming (2000) noted that the sources of problems within an organization stem mainly with the system. The system has a large impact upon the performance of people (Deming). In order to create an effective organization, all

stakeholders must work together to accomplish the transformation of the organization (Deming). Mason (2003) found that data initially used for accountability increases the systemic use of data throughout the school. The overall effect of teachers having greater access to data was the use of data for a wide range of instructional purposes (Mason).

Pressures from the larger external environment that did not align with the context of the school's efforts have been found to be an impediment to school improvement (Anafara, Roney, & Mahar, 2003). Without leadership to focus the staff members' efforts and aligning efforts from all groups, school improvement was found to be difficult (Anafara et al.). The alignment of individual action to the organization's purpose allows for greater efficiency (Marazzo, 2003). The alignment of the person's goals and the organization's mission can illustrate the systemic nature of using data to create the common purpose.

### *Mission*

The mission delineates the organization's fundamental purpose. The fundamental purpose of the public school is student achievement (DuFour & Eaker, 1998). Thus, the purpose of the mission is to overcome the identified obstacles to improve student achievement. "Unless initiatives are subject to ongoing assessment on the basis of tangible result, they represent random groping in the dark rather than purposeful improvement" (DuFour & Eaker, p. 29).

In order for an organization to be competitive, a constancy of purpose toward improvement must be created (Deming, 2000). Using data to understand how to achieve the mission as it is related to student achievement leads the organization to coordinate action (Marazzo, 2003). Through the alignment of mission, the purpose of the

organization, vision, the direction of the organization, and values, the way an organization acts, a school can begin to improve in a thoughtful, directed, and collaborative manner (DuFour & Eaker).

### *Vision*

According to Kotter (1996), the vision is a guide for an organization that inspires members to act. The vision answers the question of what the organization hopes to become (DuFour & Eaker, 1998), and by articulating the future for the organization, it may compel and direct the organization, individually and collectively, toward action. The vision serves to guide decision-making about teaching and learning (Isaacson & Bamburg, 1992). The vision of an organization also creates a plan for action by assessing current policies, practices, programs, and performance indicators then measures them against what is intended to be accomplished (DuFour, 1997).

When an organization's vision is clear, the members are better apt to understand the roles and processes within the school. The use of data is important to identify the strengths and weaknesses related to clearly defined goals (Cibulka & Nakayama, 2000) that come from the collective vision. "The use of data enables us to set targets and assess progress toward those goals" (Schmoker, 2001, p. 21). In the learning organization demanding, but achievable goals guide the organization (Brandt, 2003). Important here is the idea that goals be attainable and thus schools be able to measure and evaluate its progress. In order to assess the results, the organization must be able to measure their progress (Schmoker).

### *Values*

Values are another component that defines how an organization acts and responds to information related to student achievement (DuFour & Eaker, 1998). The commitment to the value that all students are capable of learning is one of three philosophical premises described by Cibulka and Nakayama (2000) as critical to the success of the learning community. When the assumption that all students can learn is internalized by the organization, the expectations for student success must be reassessed (Cibulka & Nakayama). The staff within an effective school creates a culture whereby they believe that they have the capability to help students achieve mastery (Lezotte, 1991). Cawelti and Protheroe (2001) found in high-achieving schools that staff members were committed to helping all students achieve. Reassessment entails questioning what the organization expects the students to learn and how to respond when the students do not learn (DuFour & Eaker, 1998). According to Louis and Kruse (1995), a core characteristic of the learning community is a continuous focus on student learning. “Students are pictured as academically capable, and staff envision learning environments to support and realize each student’s potential” (Hord, 1997, p. 12).

### *Collective Inquiry*

Collective inquiry allows an organization to grow by assessing the results of actions. Inquiry is a process whereby teachers and administration identify related issues and problems and then discuss teaching and learning in a reflective dialogue (Hord, 1997). Improving our schools is a collaborative process (Busher, 2002; Dalin, 1998; DuFour & Eaker, 1998; Fullan, 1998). The main premise of the learning community is to increase professional capacity through continuous inquiry to improve student learning



(Hord, 1997). The learning process in the organization is inquiry drive; that is, where educators work together collaboratively to improve student achievement (Cibulka & Nakayama, cited in Balach & Syzmanski, 2004). Conrad and Eller (2003) found that “school districts that use data to inform decision-making support a culture of inquiry” (p. 12). Similarly, Sergiovanni (1994) stated that inquiry shared by teachers and principals creates a community that ties the goals of the organization to a set of ideas. It is this process of collaborative inquiry that allows an organization to continuously achieve long-term goals, rather than short-term solutions (Ready, 2001).

“A professional learning community uses data-based decision-making which continuously monitors all aspects of the educational program and develops appropriate strategies for school improvement” (Cibulka & Nakayama, 2000. p. 6). The learning organization gathers the information, processes the information in order to make data-based decisions, acts upon the information, and finally assesses the progress of actions in a feedback loop (Brandt, 2003). Balach and Szymanski (2004) found that teachers who were instructed to use action research strategies developed skills that encouraged and supported change; they began to realize that they were learners by sharing instructional strategies and sharing with others (Balach & Szymanski). Through the involvement of key stakeholders in the process of investigating strengths and weaknesses, trusting partnerships may be formed from the basis of this new understanding of the organization. As members ask questions related to student performance, a shared direction is formed based upon the needs of the students.

### *Collaboration*

Collaboration is the inclusion and interaction of group members within the organization to work together, “especially in a joint intellectual effort” (Soukhanov et al., 1996). The collaborative team is the basic structure of the learning community (DuFour & Eaker, 1998). Another philosophical premise described by Cibulka and Nakayama (2000) confirms the need for collaborative teams in a learning organization. That is, the collaborative culture that exists between teacher and administrator allows other stakeholders to be brought into the process (Cibulka & Nakayama). In order to meet the needs of the students, a culture of collaboration and shared expectations and norms must be developed. The power then to make decisions is shared within a learning community. A factor to student success is “the degree to which the staff develops into a professional community that engages and develops the commitment and talents of all individuals into a group effort” (Hord, 1997, p. 13).

The collaboration of teachers and administrators toward a fundamental common purpose based on continuous improvement is a basic structure of a learning community (DuFour & Eaker, 1998). “Productive teamwork requires a steadfast concern with measurable results” (Schmoker, 2001, p. 14). The team acts upon measurable results by assessing student learning and changing instruction and curriculum to meet students’ needs. Newman and Wehlage (1995) found that a collaborative culture found throughout a school positively impacted support for student learning and student performance. The importance of teamwork was found to be an important factor in making sense out of data in a study by West and Marcharia (2001). Teachers wanted a collaborative culture when it came to using data to improve student achievement according to Mason (2003).

“Teachers and administrators work together to set goals, diagnose the gap between where they are and where they want to be, devise a plan of action based on research, and then use data to assess their progress” (Cibulka & Nakayama, 2000, p. 21).

Teams also allow educators to keep up with the growing knowledge base critical to being proficient (Richardson, 2001). The learning community actively seeks to engage teachers in their own professional development (Cibulka & Nakayama, 2000). The organization learns through the collective experience of the members so that the organization can be transformed to a renewed state of growth and productivity (Watkins & Marsick, 1993).

Within a school setting, collaboration is the means to establishing and sustaining a systematic effort that brings together all school stakeholders with the common interest of using their combined wisdom to both solve problems and advance school improvement initiatives using consensus decision-making. (Marazzo, 2003, p. 9)

Collaborative cultures allow teachers to create opportunities for continuous collective improvement.

#### *Action and Experimentation*

When teachers are viewed as learners within the organization, experimentation and innovation becomes fundamental to the process of improvement (DuFour & Eaker, 1998). “People in such a community are relentless in questioning the status quo, seeking new methods, testing those methods, and then reflecting on those results” (DuFour & Eaker, p. 25). Important here is the establishment of a culture whereby teachers are able to take risks and to share their successes and failures (Cibulka & Nakayama, 2000).

Being able to take calculated risks and implementing initiatives to improve student learning is critical. The school then analyzes the results and communicates both successes and failures to the organization.

### *Continuous Improvement*

A school's success hinges upon a process of continuous and sustained improvement (Southern Association of Colleges and Schools [SACS], 2002). Data can be used to build a culture of inquiry and continuous improvement (Love, 2001). Interpreting data and responding to the interpretation by improving practice is an ongoing process (Jandris, 2001). The learning community exhibits a commitment to continuous improvement when innovation and experimentation is evident within the culture of the organization (DuFour, 1998). Another philosophical premise of a learning community stated by Cibulka and Nakayama (2000) is that teachers are learners that continuously develop and evaluate instructional strategies to improve student outcomes. School goals and instruction are linked through analysis of student learning (Cibulka & Nakayama).

Cibulka and Nakayama (2000) stressed the importance of using multiple sources of data regarding student learning as a vehicle to improve instruction. In order for school improvement to be continuous, data are constantly being used to assess the gap between where the organization is and where it wants to be (Cibulka & Nakayama). Cawelti and Protheroe (2001) found schools that were high achieving yet serving at-risk students regularly administered assessments to check learning before teaching the next standard. Further, high-achieving schools had a schoolwide focus on clear standards and efforts to improve results (Cawelti & Protheroe). With that in place, plan of action is developed from the data, and assessment of the progress is ongoing (Cibulka & Nakayama). The

data collection, inquiry, and communication processes within the learning organization are also continuously refined (Brandt, 2003). Through a process of inquiry, experimentation, and evaluation of progress an organization can learn continuously.

#### *Focus on Results*

The use of performance data is critical to the organization's success in achieving its goals (Schmoker, 1999). In order for a learning community to assess progress, actions are constantly evaluated based on the results and/or outcomes (DuFour & Eaker, 1998). The use of multiple and varied assessment measures of student work can allow teachers to adjust curricular goals and instructional methodology to meet the students' needs (DuFour & Eaker). Districts that supported data use were found to use multiple assessments and were able to use data effectively to make decisions based upon the different sources (Conrad & Eller, 2003). Members in a learning organization are continuously aware of the organization's progress toward the defined goals (Brandt, 2003). By regularly monitoring progress and adjusting instruction based on the outcomes is the only way to expect success (Schmoker). In order to document successes and failures data are used to evaluate initiatives.

#### *Data-Based Decision-Making and Facilitative Strategies*

Barriers and driving forces exist for schools to use data to improve student achievement. The shared mission, vision, and values described by DuFour and Eaker (1998) require the use of data to define the purpose of the organization, its collective vision, and the focus on student achievement. The process of collective inquiry is used within the framework of an organization to seek answers to questions that impact student achievement (DuFour & Eaker). The impact of initiatives on student achievement is

measured by analyzing data (Schmoker, 1999). Through collaboration among teachers and administrators, the organization can increase its effectiveness by sharing what is learned among teams and individuals (Cibulka & Nakayama 2000). The learning organization sees all its members as learners who act towards school improvement (DuFour & Eaker). Actions are assessed and results are shared throughout the organization so that learning is systemic (Mason, 2003).

The model of data-based decision-making is based on continuous reflection and action (Keeney, 1998). The need for continuous improvement within the framework of a learning community necessitates the use of data to assess progress. In order for the organization to make strides toward improving student achievement, results are analyzed to assess the value of the actions taken by members of the organization (Schmoker, 1998). Finally, the use of data is critical in an organization that focuses on measuring student achievement. Understanding the impact of instructional and curricular changes on student achievement requires the use of data (Bernhardt, 2004).

Table 2 lists the major facilitative strategies that may drive a school toward data use for student achievement and teacher performance as documented across the literature. The facilitative strategies described are constructs framed from the narrative review of the literature. The purpose of the study was to evaluate the perceptions of key stakeholders with regard to the facilitative strategies and barriers that are present within the literature. These constructs frame an organization that uses data effectively.

Table 2

*Summary of Facilitative Strategies for Data Use in Schools*

Author	Systemic Effort	Mission	Vision	Values	Collective Inquiry	Collaboration	Action & Experimentation	Continuous Improvement	Focus on Results	Leadership
Bernhardt, 1998	X									
Cibulka & Nakayama, 2000			X	X	X	X	X	X		
Deming, 2000	X									
DuFour & Eaker, 1998		X	X	X	X	X	X	X	X	X
Feldman & Tung, 2001	X									
Fullan, 1998					X					
Holcomb, 1999	X									
Hord, 1997				X	X	X	X			
Jandris, 2001	X									
Kotter, 1996			X							
Lezotte, 1991				X						
Love, 2001								X		
Marazzo, 2000	X	X				X				
Mason, 2003	X				X	X		X	X	X
Schmoker, 1999	X		X			X			X	X
Senge, 1994	X					X				
Sergiovanni, 1994					X					

## Role of Key Stakeholders in Data-Based Decision-Making

The roles of the administration and teachers will be explored to understand how each impacts the process. In particular, the leadership role of administrators and teachers will be explored as a facilitative strategy.

### *Role of Administration*

According to Collins (2001), we cannot ignore the leader in any organization. Administrators have a role within the learning community to share leadership and encourage others to develop their leadership capacities. Historically, leadership has been accepted as managerial function within the schools (Donaldson, 2001). In 1910, Thomas Carlyle introduced the “Great Man Theory” suggesting one person holds the reins of an organization with followers marching to his command (Dalin, 1998). It was the single leader who made changes in hierarchical fashion.

Since then, a more broadened definition of leadership as relational, interpersonal, and democratic has emerged (Donaldson, 2001). Different from leaders who gave commands, the leaders of companies that made continuous and sustaining gains were those that understood the organization and created a culture of disciplined people who would fulfill their responsibilities (Collins, 2001). With this in mind, an effective organization would be one with leadership that is shared.

*Central office administration.* The superintendent, assistant superintendent, and other members involved with instruction are the critical stakeholders in a school division’s central office who impact decisions that effect student achievement. A superintendent of a school district who supports and encourages continuous learning among the staff is an important dimension of a learning community (Hord, 1997). The position within the framework of the learning community is seen as democratic rather than bureaucratic (Hord). According to Senge (1994), the staff within a learning organization is led by the shared vision and values. A positive culture that builds upon common values and practices allows people to work individually and in groups (Busher,



2002). DuFour (2000) underscored the need for the leadership to create a climate whereby teachers are able to work collaboratively and engage in collective inquiry for deeply embedded learning to take place.

According to a report from the Annenberg Institute for School Reform, it is important for schools to find support and resources for efforts to plan, coordinate interpret, and report data (Keeney, 1998). The administration at the central office can give support for data-based decision-making. Superintendents in a learning community challenge their staff to share ideas for improvement and to take risks with the understanding that mistakes are a part of the learning process (Hord, 1992). Building a culture that supports the efforts of staff members is the role of the superintendent.

*Building-level administration.* According to Hord (1997), the building administrator greatly influences whether change occurs or not. Without leadership sanctioning and actively promoting the development of a learning community, systemic change cannot occur. In order to improve instructional practice and, therefore, student performance, principals empower teachers to share the role of instructional leader (Cibulka & Nakayama, 2000). Conley and Goldman (1994), defined leadership as the means to enhance the collective ability of a school to improve. This is accomplished by engaging the staff in the decision-making process (Conley, et al). Team building and collaboration are the main tenets of this strategy whereby the staff are able to develop leadership skills and change the direction of the school (Lashway, 1996). The leader is then the facilitator of change rather than the one that makes decisions for the staff to follow.

The shift of administrator to a learner among other learners within the organization was suggested by Klein-Kracht (1993), who noted that the process of “questioning, investigating and seeking solutions” (p. 393) to be shared by administrators and teachers in a collegial relationship is an important element needed for schoolwide reform. Empowerment of teachers to share the instructional leadership role is the responsibility of the principal (Cibulka & Nakayama, 2000). An administrator who is able to share leadership and decision-making among the staff facilitates a collaborative learning environment among the staff (Leithwood, Jantzi, & Steinbach, 1997). For example, the principal can help teachers become learners in the organization. In the end, principals become the head learners of the organization rather than the head managers (Cibulka & Nakayama, 2000).

Effective schools are characterized by an organized approach to using data to assess strengths and weaknesses (Protheroe, 2001). Sergiovanni (2001) describes the technical force of effective principalship as the means to strategically organize people and ideas. A principal acts to ensure the day-to-day effectiveness of the organization (Sergiovanni). The necessity to plan effectively in order to give the school staff an opportunity to collaborate around common school goals is a major role of the principal (Cibulka & Nakayama, 2000).

Leadership can create urgency within the organization by using comparative data, or benchmarking, to demonstrate a need and an opportunity for improvement (Schmoker, 2001). The principal can use relevant information to make decisions that address clearly defined goals (Cibulka & Nakayama, 2000). Principals in a learning community,

according to DuFour and Eaker (1998), are results-oriented by informing practice and identifying areas that are in need of improvement.

### *Role of Teachers*

Traditionally teachers have been isolated, expected to manage the students, teach the curriculum, use appropriate strategies, and evaluate student progress within the confines of their classroom (Short & Greer, 1997). Thus, teachers have not been allowed or encouraged to be involved in significant decisions that affect the school as a whole (Short). Rosenholtz (1989) found that teachers who were supported through cooperative teacher networks and who expanded their professional roles were more effective in meeting the needs of students. Further, greater effectiveness through the collective organization of teachers was found to positively impact a school's capacity toward improvement (Youngs & King, 2000). Teachers perform more effectively if they work collaboratively (Schmoker, 1997). According to DuFour and Eaker (1998), teachers in collaborative culture share ideas about their practice, and work together on schoolwide issues recognizing that solutions to problems are a collective responsibility.

The professional teacher within a learning community focuses on student performance, recognizing that measurement of student achievement through monitoring progress and making adjustments is necessary for success (Schmoker, 1999). As a result, the learning process is monitored through various measures that correlate to learning objectives (DuFour & Eaker, 1998), and results guide future instruction and planning. Being results-oriented focusing not only on their instruction but on student learning and improving student achievement is a key role that teachers play in a learning community (Dufour & Eaker, 1998).

### Summary

The passage of NCLB “has produced one unambiguous result: an avalanche of data on the performance of public schools in the United States” (Olson, 2003, p. 1).

Although there is much data on student performance, how schools use the data is still in question. What may be missing from effective production and collection of data is how the data can be organized to guide decisions.

In order to gain a firm understanding of the individual constructs, the role of data and the process of using data to make decisions were analyzed in this chapter. How data is transformed into knowledge in order to make decisions that would better education was explored as well as the critical purpose of data in the organization. The organizational constructs that promote the use of data were also described. Finally, how the key stakeholders view the organization that each works within and the factors that contribute or prohibit the use of data was explored.

Administrators and teachers have the daunting responsibility of being accountable for student achievement. Using data to improve instruction and, thus, impact the results of student achievement is critical. This study attempts to better understand the roles of the critical decision-makers within the school. As such, it attempted to isolate the constructs found in the literature to either hinder or promote the effective use of data.

### Chapter 3: Methodology

The purpose of this study was to evaluate the perceptions of teachers and administrators regarding the use of data to make educational decisions. A cross-sectional survey design using a questionnaire was used to collect data from randomly selected central office administrators, principals, assistant principals, and teachers within a school district. The questionnaire was constructed based upon the literature regarding the use of data to make informed decisions that impact student achievement. The perceptions of the central office administrators, building-level administrators, and teachers regarding the use of data within the schools were analyzed. The perceptions of the current use of data within the school, including the barriers and opportunities to use data to increase student performance, were measured, as well as the perceived needs for data use to improve instruction. Focus groups consisting of teachers and administrators were conducted to gain further in-depth knowledge about the perceptions of the different groups on the use of data in the schools.

#### Research Questions

1. What are the differences in perceptions between teachers and administrators (building and central office) regarding inhibiting factors, facilitative strategies, and needs for the effective use of data to improve student achievement?
2. What are the differences in perception among elementary, middle, and high school teachers regarding inhibiting factors, facilitative strategies, and needs for the effective use of data to improve student achievement?

3. What are the differences in perception between building-level and central office administrators regarding inhibiting factors, facilitative strategies, and needs for the effective use of data to improve instruction?

#### *Null Hypotheses*

1. There are no significant differences ( $p < .05$ ) between teachers and administrators (building and central office) regarding inhibiting factors, facilitative strategies, and needs for the effective use of data to improve student achievement.
2. There are no significant differences ( $p < .05$ ) among elementary, middle, and high school teachers regarding inhibiting factors, facilitative strategies, and needs for the effective use of data to improve student achievement.
3. There are no significant differences ( $p < .05$ ) between building-level and central office administrators regarding inhibiting factors, facilitative strategies, and needs for the effective use of data to improve instruction.

#### Methodology

##### *Sample*

The sample for the study was selected in two parts, the respondents for the questionnaire and the focus group participants. The following outlines the selection of the sample.

The sample for the survey included all administrators (central office and building level) from one Virginia school district. At the central office this consisted of the superintendent; assistant superintendent of academic services; director of accountability, assessment, and grant writing; director of curriculum and staff development; gifted/fine arts programs services, reading, English, language arts, Title 1 and foreign language

coordinator; minority achievement supervisor; health and physical education coordinator; guidance/career and technical education supervisor; director of student services; supervisor of special education; lead teacher of special education; and science and math coordinator ( $N=14$ ). All building-level principals and assistant principals were also surveyed ( $N=28$ ). An equal-size stratified random sample of teachers from the district's two high schools ( $N=50$ ), three middle schools ( $N=50$ ), and seven elementary schools ( $N=50$ ) were selected to respond to the questionnaire.

The five groups for the focus groups consisted of central office administration, building-level administration, elementary school teachers, middle school teachers, and high school teachers. This procedure divides the population into subgroups based upon the results of the survey (Schumacher & McMillan, 1993). Participants were chosen randomly from stratified groups based upon the results of the survey. This provided the focus group with a range of views (Billson, 2000). Three focus groups were formed of teachers from each school level. Each of the three focus groups included 6 members selected from a stratified random sample of elementary, middle, and high school teachers. Another focus group included randomly selected participants consisting of four central office administrators and one included stratified random sample of participants consisting of six building level administrators. Table 3, a focus group blueprint, demonstrates how the major variables that existed within this study interacted with each other (Billson, 2000).

Table 3

*Focus Group Blueprint*

Administration		Teachers		
Central Office	Building Level	Elementary School	Middle School	High School

*Setting*

The district is located in Southeastern Virginia. The Commonwealth of Virginia developed standardized assessments in the mid-1990s shortly after adopting a written curriculum. The criterion-normed assessments were first conducted in 1998. As of this study, all schools within the participating district had been fully accredited by meeting the minimum standards in English, math, history, and science as measured by the criterion-normed assessments. Additionally, the regional accreditation body, The Southern Association of Colleges and Schools, has accredited all schools in the district.

The school district has a strategic plan with goals, objectives, and action steps. The strategic plan is based upon achievement and other data, and is written in partnership with all schools and other community members. Each school within the district also has a school improvement plan that mirrors the goals outlined in the division's strategic plan. The school improvement plans within each school includes defined goals that reflect the standardized testing results and other data relevant to each site. The use of data is a part of the district's long- and short-term goals and is reflected within the strategic plan as well as the individual schools' improvement plans.

Enrollment in the district is increasing due to the growing community. At the beginning of 2004 the enrollment was over 9,000 students, up 4% from the previous year.



Elementary enrollment was almost 4,000 students; middle school enrollment was over 2,000 students; and the high school enrollment was over 3,000 students. The school district employs over 800 professional staff and 600 support staff.

### *Generalizability*

The results of this study may be generalized to school districts in the Commonwealth of Virginia with similar demographics. Because the survey and focus groups were conducted within one school district, generalization of the results will be limited.

### *Instrumentation*

Two methods of analysis were used to answer the research questions. A quantitative analysis was used through a questionnaire with items rated on a likert scale by respondents. The second part of the study was a qualitative analysis through open-ended prompts on a questionnaire as well as focus group interviews.

### *Survey*

In the first part of the study, the researcher used a cross-sectional survey design whereby different groups were studied at the same time (Schumacher & McMillan, 1993). The survey was given to building level and central office administrators and teachers from elementary, middle, and high schools. Questionnaire items reflected the current research defining the barriers and facilitative strategies that exist when using data to improve instruction and student achievement. The survey items were aligned with the research questions.

A survey was chosen for data collection because it could provide standardized information from a representative sample of staff members that impact instruction. A

cross-sectional survey was used for data collection because the methodology has been found valuable for the purposes of description (Borg & Gall, 1989). In addition, a focus group interview process with groups defined by their positions within the district was used to gather an in-depth information about participants' views in the context of the views of others (Patton, 2002). The qualitative data that emerged from the focus group interviews were used in conjunction with the analysis of the survey for a more complete picture.

*Survey development.* The survey was used to analyze the barriers and facilitative strategies perceived by teachers and administrators regarding the organization. The questionnaire contained three sections of questions. The first section contained general background questions. Items included general questions defining the respondents' position (teacher or administration) and level (central office, high school, middle school, or elementary school), as well as length of time employed in the school district.

The second section addressed barriers and facilitative strategies identified by literature and research. Multiple questions were used to assess the presence of specific barriers and facilitative strategies. Table 4 shows the items on the questionnaire correlated with the specific strategy or barrier.

Table 4

*Table of Specifications*

## Correlation of questions with barriers

Barrier	Questionnaire Item
Lack of focus	3, 6, 21
Fear	9, 11, 37
Lack of emphasis	24, 30, 34
Lack of resources	15, 33, 36
Lack of time	4, 14, 39
Lack of training	16, 20, 41
Gap between researcher and practitioner	26, 45, 47
Bias	27, 50, 55
Lack of face validity	29, 52, 53

## Correlation of questions with facilitative strategies

Facilitative Strategy	Questionnaire Item
Systemic Effort	25, 28, 49
Mission	22, 32, 51
Vision	1, 2, 54
Values	7, 34, 56
Collective Inquiry	38, 40, 57
Collaboration	8, 12, 13
Action and Experimentation	17, 18, 43
Continuous Improvement	10, 23, 42
Focus on Results	30, 38, 45
Leadership	44, 46, 48

Section 2 included items that addressed each of the 9 barriers and 10 facilitative strategies identified in the literature review. The items were rated on a 5-point Likert scale (strongly agree, somewhat agree, somewhat disagree, strongly disagree). This scale included a direction that the respondent could agree or disagree with the item. Thus, “Not applicable/Undecided” was included as a choice for each item. Schumacher and McMillan (1993) suggested the use of the neutral choice in the Likert scale so the respondent does not make an incorrect choice. The 57 items in this section included

barriers and facilitative strategies that a staff member may perceive as inhibiting or promoting him/her the use of data/information. Three questions have been aligned with each barrier and strategy to offer inter-item reliability. The reliability of the constructs was assessed through analysis of Cronbach's Alpha.

The final section in the questionnaire consisted of three open-ended prompts. Two open-ended prompts allowed respondents to describe conditions in the school or school district that either promote or hinder the use of data to improve student achievement and teacher performance. The third prompt requested the respondent to list any factors that are necessary for a school to use data more effectively.

The responses to the questionnaire were qualitative in nature and were used to gain a deeper understanding of the respondents' perceptions. The responses were transcribed and reviewed to understand common threads that emerged from each category. The responses were further evaluated by frequency and extensiveness of a particular theme. The information was used with the quantitative findings and the focus group interviews to offer a greater depth of understanding of the research questions.

*Expert panel.* The survey was derived from a content analysis of findings in the literature on the use of data. Related studies did not offer appropriate surveys that aligned with the research questions. Therefore survey was developed and validated for the purpose of this study. The survey was reviewed by an expert panel to ensure items were clearly written, limited to one idea, easily understood, not stated in the negative, and relatively free of bias (Babbie, 1989). The expert panel also reviewed the items to ensure they were relevant to the research question and literature defining barriers and facilitative

strategies of the use of data in education to improve student achievement (see Appendix B).

The expert panel consisted of three researchers familiar with the subject area. The researchers included one educational leadership professor from a university, and two consultants and authors of research in educational leadership. Items were analyzed by the panel and then refined by this researcher. Recommendations regarding the following issues were requested specifically: (a) clarity of language, (b) clarity of directions, (c) length, (d) discreteness of items, and (e) the application of questions to the specific barriers and facilitative strategies. Items that were changed were sent to the expert panel for approval. Any suggested revisions, deletions, and/or additions made by the reviewers were incorporated into the final survey instrument.

#### *Analysis of the Survey Results*

Frequencies, means, and standard deviations were used to describe the variables and describe the variability in the distribution (Kiess, 1989). Perceptions of elementary, middle, and high school teachers and building and central office administrators were compared using pairwise comparisons. Statistical tests were conducted to find which pairs of means differed significantly (Kiess). Specifically, comparisons were made using an analysis of variance between groups (ANOVA). Separate ANOVA were used to measure (a) the responses of the central offices administrators, building-level administrators, and teachers; and (b) the responses from the high school teachers, middle school teachers, and elementary school teachers. The groups were compared to determine if the means were statistically different. Each defined barrier and facilitative strategy was analyzed between each pair of groups. Statistics were used to identify the

relationships between and among teachers and administrators and their perceptions of barriers and facilitative strategies to use data for school improvement. Post-hoc comparisons were made if significant differences were found using the Tukey HSD to analyze all pairwise comparisons.

#### *Focus Group Interview*

The second part of the study was qualitative in nature, designed to provide a more in-depth investigation of the perceptions of data use in the school setting by specific groups. The focus group process enhances the quality of the data by providing checks and balances and tempering extreme or false viewpoints (Krueger & Casey, 2000). “Focus groups afford depth and insight into the research question and contextualize quantitative data” (Billson, 2000, p. 1). The focus groups offered greater depth and understanding of the research questions in order to place the survey results in context (Billson) and to deepen the understanding of the topic (Bloor, Frankland, Thomas, & Robson, 2001). A multiple-category design was used to make comparisons among groups (Krueger & Casey, 2000).

Through a focus group interview process based upon the results of the survey, the researcher further investigated the perceived inhibiting factors, facilitative strategies, and needs of respondents. A focus group protocol was developed in order to guide the discussion and to provide consistency of the topics discussed between groups (see Appendix A). The purpose of the qualitative part of the study was to explain in greater depth: (a) the barriers and facilitative strategies perceived by teachers and administrators regarding the use of data to improve student achievement, (b) the perceptions teachers have regarding their role and the role of administrators to use data to improve instruction,

and (c) the perceptions that administrators have on their roles and the roles of teachers to use data to improve instruction.

The focus group gathered information from key stakeholders to be able to assess the extent to which there were relatively consistent shared perceptions or more diverse opinions regarding data-based decision-making in the schools (Patton, 2002). That is, focus groups enabled the researcher to understand the different range of perspectives of participants within and between groups defined by the study (Krueger & Casey, 2000). Billson (2000) noted the use of focus groups to enhance the validity and enrich the data. Focus groups were combined with the results of the survey to offer a more comprehensive analysis of the research questions.

The participants for the focus group interviews were selected based upon the group blueprint (Table 3) as well as the group members' responses to the survey. Survey responses were used to create heterogeneous groups based upon respondents' perceptions of barriers and facilitative strategies. Group members were also chosen if they have worked more than one year in the school district to preserve homogeneity of the groups and so that members may speak from a similar context. The five focus groups consisted of 6-8 members each, deemed an optimum size for group discussion (Bloor et al., 2001). That is, groups of this size are large enough for people to provide diversity of opinions and small enough for participants to have the opportunity to share their thoughts (Kreuger & Casey, 2000).

The focus groups were characterized by homogeneity in terms of position and heterogeneity in terms of perspectives. The homogeneity of the group was preserved by position level, an essential variable in terms of the research questions. The focus groups

of teachers were divided by school level to preserve homogeneity. Homogeneity among group members in terms of status and power is important to ensure that members are not silenced due to their hierarchy within the organization (Bloor et al., 2001). Heterogeneity within the focus group is valuable when participants have direct experience with the topic (Billson, 2000). That is, sufficient diversity can encourage discussion (Bloor et al.) and encourage participants to discuss contrasting opinions (Krueger & Casey, 2000). Focus group participants consisted of respondents to the initial survey and, thus, had exposure to the research topic.

### *Data Management*

The focus group interviews were recorded and transcribed (see Appendix C) to enable substantive analysis (Bloor et al., 2001). Additionally, the researcher recorded notes in a field journal after the focus group interviews to summarize observations and reflections. The transcription was divided into discrete statements of information and categorized by theme for each question. The researcher looked for convergence, or recurring ideas that fit together (Guba, 1978). Statements were categorized as barriers, facilitative strategies, or perceived needs, as well as discrete themes that emerged from each category. Factors that were considered when reviewing the categories included the frequency something was said, the specificity and detail given, the emotion of the participant, and the extensiveness of the number of people who said something pertaining to the specific theme (Krueger & Casey, 2000).

A descriptive summary was written for each question, with quotes used to capture the essence of what was said (Krueger & Casey, 2000). The summary of themes by question was used to gain a deeper understanding of the data provided by the



questionnaire. Substantive significance in presenting the findings and conclusion were determined by the consistency of the findings, the extent the findings deepen the understanding of the research questions, and the extent to which the findings were consistent with other knowledge (Patton, 2002). The qualitative findings were used in conjunction with the quantitative findings to offer greater depth and understanding of the research questions.

### *Role of the Researcher*

The researcher is a staff member in the district and was an active participant in the study during the administration of the questionnaire. However, part of the researcher's role in the study was also that of the qualitative researcher as described by Patton (2002). The researcher conducted the focus group interviews for the purpose of describing and interpreting the perceptions of teachers and administrators regarding barriers and facilitative strategies in the use of data to improve student achievement. The researcher recorded his awareness of the emergent nature of the research and reflected on potential sources of bias and error with the use of a field journal (Patton). In order to establish credibility, the researcher adopted a stance of neutrality with regard to the study (Patton), balancing his reporting with perspectives from the focus groups that confirmed as well as disconfirmed conclusions from the quantitative analysis (Patton).

*Researcher as instrument.* Reflexivity, according to Patton (2002) requires the qualitative inquirer to critically reflect upon his perspectives and the effect upon what is observed. Qualitative researchers must be "learners who are systematic and rigorous while sensitive to ways their own life histories are shaping their projects" (Rossman &

Rallis, 1998, p. 20). A brief description of the researcher's professional and educational background serves the purpose of self-reflection and self-awareness.

During the past 10 years in public education, I have served many roles, including that of teacher, assistant principal, and principal. During my tenure as a teacher, I served as chairperson for the school improvement committee at my school. This role allowed me to understand the nature of the school improvement plan, as well as the district's strategic plan. Both documents were focused upon documenting goals and objectives. The use of data to document progress toward defined goals was a primary role of the position I held. Reform measures, including the Virginia Standards of Learning and No Child Left Behind – Elementary and Secondary Education Act of 2001, were implemented during my tenure as a teacher. Thus, as a teacher, I witnessed the increasing importance of the results of standardized testing upon school improvement plans, the district's strategic plan, as well as my own instruction in the classroom.

I have served as an assistant principal for more three years and a principal for less than one year. I have had the opportunity to serve as the Southern Association of Colleges and Schools chair for my school on several occasions and also to be on a committee that accredited schools. The position entails documenting performance indicators to gain accreditation. My positions as an assistant principal and principal have also allowed me to better understand the roles of teachers, building-level administrators, and central office administrators as stakeholders in the school improvement process. The role of assistant principal has afforded me the opportunity to create and experience staff development based upon data to improve student achievement.

My experiences as teacher and administrator trying to identify how to improve my instruction and the instruction of other teachers, respectively, has facilitated my understanding of the demands placed upon the roles of teacher and administrators to improve student achievement. The demands placed upon teachers and administrators to meet requirements based upon standardized tests are challenges that I have faced myself. My understanding of data-based decision-making and role of teacher and administrator is based upon my experience in the public education setting.

### *Procedures*

Permission to conduct the study was obtained from the superintendent and the assistant superintendent of instruction for the school district. A letter was submitted describing the purpose and nature of the study, and including a copy of the questionnaire, to the superintendent and assistant superintendent of instruction according with the district's policy regarding research (see Appendix D). Once permission was granted, a letter describing the purpose and the nature of the study was forwarded to the assistant superintendent of instruction who in turn notified the principals that I would be conducting research in their schools.

A list for identifying the participant pool within each school was obtained. The cover letter (see Appendix E), informed consent letter (see Appendix F), and questionnaire (see Appendix G, H, and I) were mailed to a random group of administrators and teachers on February 24, 2005. 191 surveys were mailed. The cover letter contained information about the researcher, purpose of the study, a description of the instrument, and the criteria for participation. The survey was coded to identify participants in order to be able later to formulate heterogeneous focus groups based upon

the results of the questionnaire and also to identify participants who did not return the questionnaire. Potential subjects who had not responded by March 8, 2005, were reminded by blind e-mail to respond to the survey. Another reminder was mailed on March 17, 2005, to the remaining subjects who had not responded.

The surveys were analyzed using pairwise comparisons. 110 surveys were returned. The overall response rate was 58%. The responses from surveys completed by teachers and administrators were analyzed for heterogeneity among the groups in terms of perceived barriers and facilitative strategies. The five focus groups were formed using the results of the survey to provide heterogeneous perspectives within each of the five groups.

The interview protocol was refined based upon the results of the survey. Participants from each group consisted of a stratified random sample, except for respondents from central office, which were selected randomly due to the small sample. Respondents who agreed to participate in the focus group interview were contacted by e-mail and notified of the date, time, and place of the meeting. They were asked to respond to the e-mail and confirm if they will attend. Participants who did not answer were contacted a second time in an effort to get a response. Replacements were made for participants who did not respond or did not wish to participate. The researcher attempted to secure 6-8 participants for each focus group interview. The five focus group interviews were conducted during May 2005.

### *Ethical Safeguards*

The study protected the anonymity of the school division and the employees who participated in the study. Consideration was made for the privacy of teachers,

administrators, and schools. All information was confidential. The research proposal was submitted on November 16, 2004, to the Protection of Human Subjects Committee of The College of William and Mary and permission to proceed with this study was granted. The study was conducted following acceptable research practices.

## Chapter 4: Results

The three research questions were answered by tabulating data collected via the survey instrument. The specific focus of the analysis was to determine whether there was a statistically significant ( $p < .05$ ) difference between or among groups regarding different barriers and facilitative strategies. The researcher used the Statistical Package for the Social Sciences (SPSS) to analyze the data collected from the survey. Data were analyzed using a one-way analysis of variance (ANOVA) and Tukey's HSD for pairwise comparisons after the ANOVA. The results are further elaborated upon using the qualitative data from the focus groups.

### *Sample*

The initial mailing of the survey materials to teachers and administrators occurred on February 28, 2005, to the seven elementary schools, three middle schools, two high schools, one alternative school, and central office. The respondents who did not return the survey were notified by e-mail after two weeks from the initial mailing and again by a postcard after three weeks from the initial mailing. The overall response rate was 58%. The teacher response rate was 51%. The building-level administrator response rate was 85%. The central office administrator response rate was 79%. Table 5 details the response rates from each group.

Table 5

*Response Rate from Questionnaire*

Group	Total # Sample	# Surveys Returned	Response rate
Teachers	150	76	51%
Elementary	50	23	46%
Middle	50	34	68%
High	50	19	38%
Building Level	27	23	85%
Central Office	14	11	79%
Overall	191	110	58%

Of particular note is the low response rate for high school teachers. It may result in a non-representative sample and, thus, may be a threat to the validity of the study.

#### Data and Analysis

The perceived differences between teachers (elementary, middle school, and high school) and administrators (building level and central office) were analyzed by computing ANOVAs and using the Tukey HSD for pairwise comparisons. The research questions were answered by assessing the statistical differences of the means for all factors. The mean of the three questions related to each barrier was computed. Responses to the survey items were used to determine whether specific barriers and strategies were shown to be statistically significant between defined groups.

The Cronbach alpha procedure was used to obtain the reliability estimate of the internal consistency of the different strategies and barriers specifically and overall. McDaniel (1994) suggested that, “the Coefficient Alpha is a suitable procedure to use when responses get a specific value as in attitude scale where responses range from strongly agree to strongly disagree” (p. 64). Nunnally (1978) suggested that 0.7 was an acceptable reliability coefficient, but lower thresholds are also used in the literature

(Santos & Reynaldo, 1999). Furthermore, van den Bergh (1987) stated that, “an Alpha-value at least more than .60 indicates a good reliability of scale” (p. 43). Schumacher and McMillan (1993) further explained that studies of groups in exploratory research, such as this study, can tolerate lower reliability, as low as .50. Therefore, an alpha value of at least .50 or higher was acceptable for the purpose of this study. Table 6 shows Cronbach’s alpha for each set of questions.



Table 6

*Cronbach's Alpha for Questionnaire*

Strategy/Barrier	Cronbach's Alpha ( $\alpha$ )
<b>Barriers</b>	
Lack of Focus	.247 *
Fear	.502
Lack of Emphasis	.744
Lack of Resources	.548
Lack of Time	.651
Lack of Training	.618
Gap Between Researcher and Practitioner	.509
Bias	.582
Lack of Validity	.673
Barriers (overall)	.881
<b>Strategies</b>	
Systemic Effort	.666
Mission	.575
Vision	.842
Values	.501
Collective Inquiry	.821
Collaboration	.570
Action and Experimentation	.504
Continuous Improvement	.402 *
Focus on Results	.605
Leadership	.782
Strategies (overall)	.940

\* Scores below the .50 acceptable level.

Some sets of questions showed alpha index reliability scores lower than .50 which may be a potential threat to the study. "Cronbach's alpha is an index of reliability associated with the variation accounted for by the true score of the 'underlying construct'" (Santos & Reynolds, 1999, ¶ 8). Of particular interest are the low scores

noted in Table 6. Although qualitative data, focus group interviews and open-ended responses on the survey offer greater understanding and may corroborate quantitative data. However, it is necessary to note the scores that are considered to be less reliable.

The more items in an instrument, the higher the reliability (Schumacher & McMillan, 1993). In order to create an instrument that would assess the many constructs within the study and limit the number of items in an effort to achieve an appropriate length of the questionnaire, the internal reliability construct may fall to lower than acceptable levels. The qualitative analysis enabled the researcher to triangulate the results of the study and to offer more depth to the analysis of the individual constructs.

Each response of the survey was assigned a value as follows: *strongly disagree*, 1; *disagree*, 2; *not applicable/undecided*, 3; *agree*, 4; *strongly agree*, 5. A mean was calculated for each response for each three questions aligned with the particular barrier or facilitative strategy. Means of each item cluster were then calculated for each group. The mode for each group of questions related to the particular strategy or barrier was also calculated. For a breakdown of the mean, mode, and standard deviation for each factor by group refer to Tables 7 and 8.

Table 7

*Descriptive Statistics for Teachers and Administrators*

	Teachers <i>N</i> = 73		Building Level Administrators <i>N</i> = 37		Central Office Administrators <i>N</i> = 14	
Barrier/Strategy	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
Barriers						
1. Focus	2.4	.57	2.1	.60	1.9	.40
2. Fear	3.1	.71	3.0	.87	3.2	.56
3. Emphasis	3.0	.78	2.7	.62	2.3	.94
4. Resources	2.5	.74	1.9	.50	2.2	.56
5. Time	3.2	.90	2.6	.90	3.4	.45
6. Training	2.6	.72	2.3	.63	2.0	.74
7. Gap	2.7	.70	2.0	.58	2.5	.58
8. Bias	3.3	.80	3.0	.65	3.2	.58
9. Validity	2.5	.81	2.3	.41	2.1	.67
Strategies						
10. Systemic	3.1	.79	3.6	.63	3.2	.76
11. Mission	3.7	.64	4.2	.43	3.9	.73
12. Vision	3.8	.81	4.1	.59	3.8	1.1
13. Values	4.3	.56	4.3	.50	4.1	.88
14. Inquiry	3.6	.84	4.1	.51	3.5	.95
15. Collaboration	3.4	.74	4.2	.58	3.7	.58
16. Action	3.7	.65	4.0	.45	3.7	.80
17. Improvement	3.7	.58	3.9	.71	3.6	.47
18. Results	3.7	.63	4.1	3.9	3.9	.44
19. Leadership	3.3	.85	4.0	.37	3.5	.83

\* Range = 1.0 – 5.0, Note. 1 = Strongly Disagree, 5 = Strongly Agree.

Table 8

*Descriptive Statistics for Teachers by School Level*

	Elementary Teachers <i>N</i> = 23		Middle School Teachers <i>N</i> = 34		High School Teachers <i>N</i> = 19	
Barrier/Strategy	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
<b>Barriers</b>						
1. Focus	2.4	.97	2.4	.97	2.5	.81
2. Fear	2.8	1.03	3.2	1.03	3.3	.88
3. Emphasis	2.7	.92	3.1	.95	3.3	.79
4. Resources	2.2	.95	2.6	1.09	2.7	.94
5. Time	3.1	1.25	3.0	1.10	3.8	1.00
6. Training	2.7	.90	2.5	.89	2.7	.95
7. Gap	2.6	.96	2.7	.98	2.9	.89
8. Bias	2.8	1.02	3.5	.97	3.6	.99
9. Validity	2.3	.70	2.5	1.09	2.8	1.13
<b>Strategies</b>						
10. Systemic	3.4	.98	3.0	1.04	2.8	.95
11. Mission	4.0	.76	3.6	.94	3.5	.83
12. Vision	4.1	.68	3.7	1.11	3.6	.80
13. Values	4.5	.55	4.2	.83	4.1	.97
14. Inquiry	3.9	.82	3.5	1.03	3.2	.92
15. Collaboration	3.9	.90	3.3	1.06	3.1	.88
16. Action	3.9	.95	3.6	.92	3.5	.80
17. Improvement	4.0	.68	3.7	1.00	3.5	.66
18. Results	3.9	.73	3.6	.88	3.5	.81
19. Leadership	3.7	.93	3.1	1.05	3.2	.82

\* Range = 1.0 – 5.0, Note. 1 = Strongly Disagree, 5 = Strongly Agree.

Note. Legend for Tables 7 and 8

- |  |                                |
|--|--------------------------------|
| 1. Lack of Focus                           | 10. Systemic Effort            |
| 2. Fear                                    | 11. Mission                    |
| 3. Lack of Emphasis                        | 12. Vision                     |
| 4. Lack of Resources                       | 13. Values                     |
| 5. Lack of Time                            | 14. Collective Inquiry         |
| 6. Lack of Training                        | 15. Collaboration              |
| 7. Gap Between Researcher and Practitioner | 16. Action and Experimentation |
| 8. Bias                                    | 17. Continuous Improvement     |
| 9. Lack of Validity                        | 18. Focus on Results           |
|  | 19. Leadership                 |

### *Research Question 1*

The following hypothesis was evaluated using ANOVA and the Tukey HSD for pairwise comparisons: There are no significant differences ( $p < .05$ ) between teachers and administrators (building and central office) regarding inhibiting factors, facilitative strategies, and needs with regard to effective use of data to improve student achievement. Pairwise comparisons at less than the .05 level indicate that the difference between the means is significant. A summary of these findings is presented in Tables 9 and 10.

Table 9

*Analysis of Variance Between Teachers, Building-Level Administrators, and Central Office Administrators*

Barrier/Strategy	<i>df</i>	<i>F</i>	<i>p</i>
Barriers			
Lack of Focus	3	6.10	.00 *
Fear	3	0.23	.80
Lack of Emphasis	3	4.73	.01 *
Lack of Resources	3	7.01	.00 *
Lack of Time	3	2.35	.10
Lack of Training	3	4.52	.01 *
Gap between Researcher and Practitioner	3	1.27	.29
Bias	3	1.70	.19
Lack of Validity	3	1.92	.15
Strategies			
Systemic Effort	3	4.90	.01 *
Mission	3	7.12	.00 *
Vision	3	1.50	.23
Values	3	0.69	.50
Collective Inquiry	3	4.35	.02 *
Collaboration	3	9.26	.00 *
Action and Experimentation	3	2.01	.14
Continuous Improvement	3	1.06	.35
Focus on Results	3	4.66	.01 *
Leadership	3	7.43	.00 *

\* Designates results that are statistically significant ( $p < .05$ ).

Table 10

*Tukey HSD Between Teachers and Administrators*

Barrier/Strategy	Source	
	A X B	A X C
<b>Barriers</b>		
Lack of Focus	.04 *	.01 *
Fear	.80	.99
Lack of Emphasis	.15	.02 *
Lack of Resources	.00 *	.43
Lack of Time	.16	.69
Lack of Training	.13	.03 *
Gap between Researcher and Practitioner	.35	.58
Bias	.16	.85
Lack of Validity	.45	.20
<b>Strategies</b>		
Systemic Effort	.00 *	.81
Mission	.00 *	.58
Vision	.22	.99
Values	.94	.54
Collective Inquiry	.01 *	1.0
Collaboration	.00 *	.59
Action and Experimentation	.12	.98
Continuous Improvement	.46	.81
Focus on Results	.01 *	.39
Leadership	.00 *	.75

\* Designates results that are statistically significant ( $p < .05$ ).

Note.

A = Teachers

B = Building Level Administrators

C = Central Office Administrators

The results of the analysis of data demonstrate significant differences between teachers and building-level administrators regarding facilitative strategies. Six out of 10 facilitative strategies between teachers and administrators were found to be significantly

different. However, all groups perceived the existence of each facilitative strategy, with scores of 3.1 or greater. Differences occurred between teachers and building-level administrators regarding specific facilitative strategies, such as systemic effort, mission, collective inquiry, collaboration, focus on results, and leadership, however all groups perceived the existence of each facilitative strategy.

It is important to note that there were no significant differences between teachers and central office administrators in perceptions regarding facilitative strategies. There was agreement between teachers and central office administrators that strategies existed within the schools to facilitate data use. The barrier, lack of focus, was found to be significantly different between teachers and both building-level administrators and central office administrators. The latter two groups more strongly disagreed that a lack of focus was a barrier. Some groups did perceive the existence of barriers such fear, lack of time, and bias, however all other barriers were perceived by the groups as not prevalent in the district or school.

### *Research Question 2*

The following hypothesis was evaluated using ANOVA and the Tukey HSD for pairwise comparisons: There are no significant differences ( $p < .05$ ) among elementary, middle, and high school teachers regarding inhibiting factors, facilitative strategies, and needs with regard to effective use of data to improve student achievement. Pairwise comparisons significant at less than the .05 level indicate that the difference between the means is significant. A summary of these findings is presented in Tables 11 and 12.



Table 11

*Analysis of Variance Among Elementary, Middle, and High School Teachers*

Barrier/Strategy	<i>df</i>	<i>F</i>	<i>p</i>
<b>Barriers</b>			
Lack of Focus	2	0.20	.82
Fear	2	2.84	.07
Lack of Emphasis	2	4.46	.02 *
Lack of Resources	2	3.51	.04 *
Lack of Time	2	5.66	.00 *
Lack of Training	2	0.30	.74
Gap between Researcher and Practitioner	2	1.71	.19
Bias	2	7.43	.00 *
Lack of Validity	2	2.85	.06
<b>Strategies</b>			
Systemic Effort	2	4.44	.02 *
Mission	2	4.98	.00 *
Vision	2	2.20	.12
Values	2	4.54	.01 *
Collective Inquiry	2	4.00	.02 *
Collaboration	2	8.87	.00 *
Action and Experimentation	2	1.80	.17
Continuous Improvement	2	5.96	.00 *
Focus on Results	2	2.41	.10
Leadership	2	4.06	.02 *

\* Designates results that are statistically significant ( $p < .05$ ).

Table 12

*Tukey HSD Between Elementary, Middle, and High School Teachers*

Barrier/Strategy	Source		
	D X E	D X F	F X E
<b>Barriers</b>			
Lack of Focus	.94	.80	.93
Fear	.11	.09	.93
Lack of Emphasis	.10	.02 *	.51
Lack of Resources	.07	.05	.90
Lack of Time	.83	.04 *	.00 *
Lack of Training	.86	.97	.75
Gap between Researcher and Practitioner	.62	.16	.51
Bias	.00 *	.00 *	.78
Lack of Validity	.59	.05	.24
<b>Facilitative Strategies</b>			
Systemic Effort	.07	.02 *	.63
Mission	.05	.01 *	.56
Vision	.15	.18	.99
Values	.03 *	.03 *	.94
Collective Inquiry	.20	.02 *	.34
Collaboration	.01 *	.00 *	.34
Action and Experimentation	.36	.17	.77
Continuous Improvement	.05	.00 *	.34
Focus on Results	.25	.09	.71
Leadership	.02 *	.08	.98

\* Designates results that are statistically significant ( $p < .05$ ).

Note.

D = Elementary Teachers

E = Middle School Teachers

F = High School Teachers

Overall, more differences were found between elementary teachers and high school teachers regarding both facilitative strategies and barriers. Five out of the 9 facilitative strategies were considered to be statistically significant. However, only one

facilitative strategy, systemic effort, was scored below 3.0. The high school teacher group scored 2.8 regarding systemic effort, while all other facilitative strategies within all groups scored a 3.0 or higher. This is evidence that, generally, the participants agreed that facilitative strategies were in place in order to use data. The high school teacher groups disagreed that systemic effort existed to support data use in the schools, but rated all other facilitative strategies as being present in the organization. All other groups rated the facilitative strategies as present within the organization.

Among all facilitative strategies that were found to be statistically significant, elementary school teachers agreed to a greater extent than high school teachers that the facilitative strategies existed. Between high school and middle school teachers, only one construct, lack of time, was considered to be statistically significant. High school teachers agreed to a greater extent that a lack of time was a barrier that existed within the school. Between elementary school teachers and middle school teachers, one barrier and three strategies were found to be statistically significant. Both high school and middle school teachers perceived bias as a barrier; elementary school teachers did not perceive it as a barrier. Four barriers were perceived to exist by one or more of the teacher groups: fear, lack of emphasis, lack of time, and bias. All other barriers were not perceived by the teacher groups to be prevalent and, thus, would not impact the use of data to improve the school.

*Research Question 3*

The following hypothesis was evaluated using ANOVA and the Tukey HSD for pairwise comparisons: There are no significant differences ( $p < .05$ ) between building-level and central office administrators regarding inhibiting factors, facilitative strategies, and needs with regard to effective use of data to improve instruction. Pairwise comparisons significant at less than the .05 level indicate that the difference between the means is significant. A summary of these findings is presented in Tables 9 and 13.

Table 13

*Tukey HSD Between Building-Level and Central Office Administrators*

Barrier/Strategy	Source
	B X C
<b>Barriers</b>	
Lack of Focus	.62
Fear	.87
Lack of Emphasis	.47
Lack of Resources	.40
Lack of Time	.14
Lack of Training	.58
Gap between Researcher and Practitioner	.99
Bias	.75
Lack of Validity	.74
<b>Strategies</b>	
Systemic Effort	.30
Mission	.27
Vision	.48
Values	.49
Collective Inquiry	.14
Collaboration	.14
Action and Experimentation	.50
Continuous Improvement	.40
Focus on Results	.73
Leadership	.15

\* Designates results that are statistically significant ( $p < .05$ ).

Note.

B = Building Level Administrators

C = Central Office Administrators

Between building level administrators and central office administrators, there were no significant differences regarding both facilitative strategies and barriers. The null hypothesis is accepted in all categories between building level and central office administrators for all barriers and facilitative strategies. The lowest mean with respect to

facilitative strategies was 3.2 given by central office administrators regarding systemic effort. This is still a score that would be considered agreement with the existence of the particular facilitative strategy. All building level and central office administrators perceived the existence of all facilitative strategies. Only central office administrators perceived the existence of specific barriers including, fear, lack of time, and bias. Building level administrators did not perceive that any barrier existed.

### Discussion of Results

Through the between-groups one-way analyses of variance, Tukey HSD posttest for pairwise comparisons, open-ended responses from the questionnaire, and the focus groups that were conducted with all subgroups, the research questions are discussed. The specific barriers and strategies defined as either hindering or assisting in the use of data to improve student achievement and/or teacher performance are examined.

### Barriers

#### *Lack of Focus*

The observed differences among the means were significant at the .05 level with the ANOVA between teachers and administrators. The Tukey HSD test indicated that the perception regarding a lack of focus differed significantly between teachers and building-level administrators, as well as between teachers and central office administrators. Both groups of administrators disagreed to a greater degree (building level,  $M=2.1$ ; central office administrators,  $M=1.9$ ) than teachers ( $M=2.4$ ). All groups, however, disagreed on a lack of focus that would prevent them from using data. Thus, lack of focus was not perceived by any group as a barrier within the organization.

The focus groups provided evidence that not all actions within the school organization utilize data to focus the efforts of the staff. This is contradictory to the findings from the questionnaire; however, some qualitative findings suggest lack of focus was not perceived as a barrier. Whether the school was making progress was difficult to establish due to the number of students entering and leaving the district, according to the high school focus group. The reliability of the data may compromise whether the school can effectively focus its actions because the students assessed enter the school system from other districts.

The middle school focus group noted the different measures that were taken or that were planned to be taken to focus the organization's actions. One action included building strategies based upon the results of the standardized tests and the disaggregated data derived from analyzing the scores from the different subgroups. However, one middle school teacher noted, "Once we get the information from the faculty meeting, no one has ever come back to say, 'Okay, this is what you need to do to improve what you are doing.' They kinda let you go." High school teachers noted that if information was disaggregated in terms of content area and subgroup population, the information would be used to modify instruction, but it was not always given in simple terms.

In summary, if information were accessible to teachers, teachers would more likely use it. All groups, teachers and administrators, discussed the call for leadership to put greater focus on data toward improving instruction and student achievement.

### *Fear*

There was no evidence that the groups differed regarding their perceptions of fear and the use of data to improve student achievement. Although the group means indicated

that fear was either not applicable or undecided (teachers,  $M=3.1$ ; building-level administrators,  $M=3.0$ ; central office administrators,  $M=3.2$ ), fear may be a factor as evidenced by the qualitative analysis.

Contradictory to the findings regarding the means of each group, through an analysis of the open-ended responses and focus groups, it seems that, fear may play a role that prevents the groups from using data. This is Teachers across all levels noted within the focus groups and the open-ended responses on the questionnaire anxiety regarding the results of the standardized tests in that the scores do not take into account the various factors that may pull scores down. Those factors may include special education students, poor attendance, and also the clustering of gifted and talented students in specific classes that would distort the assessment by teacher according to the respondents.

Elementary teachers also pointed out that teachers compare scores with other teachers and that it may cause teachers to feel insecure. Peer criticism and judgment was listed as a barrier on the open-ended responses on the questionnaire of an elementary school teacher and was discussed in the focus group for elementary school teachers. According to the elementary school teacher focus group, this also impacts children. "A lot of teachers will rate themselves on those [standardized test] scores, because that is what is going to be seen in public, and that is their rating, so their anxiety is passed down on the kids." One high school teacher said, "I think there is a fear - a great fear that that kind of data will be used against us." In the same vein, a central office administrator said, "I think people are panicking unnecessarily, but that it does bring attention to the need for achievement and that is a good thing." The impact of NCLB and the increased criticism of the schools by the media were also discussed by central office administrators.



A middle school teacher explained on the questionnaire, “Everyone has to be willing to be honest about how they use the data and their willingness to change based on what the data reveals.”

Although the perception of the respondents on the questionnaire did not show that fear was a factor that would impede the use of data, teachers and administrators within the focus groups noted the presence of fear and/or anxiety within the schools caused by the use of data.

### *Lack of Emphasis*

The observed differences among the means were significant at the .05 level with the ANOVA between teachers and administrators and between teachers at different levels. The Tukey HSD test indicated that the perception regarding a lack of emphasis differed significantly between teachers ( $M=3.0$ ) and central office administrators ( $M=2.3$ ) and between elementary teachers ( $M=2.7$ ) and high school teachers ( $M=3.3$ ). Specifically, the Tukey HSD indicated that central office administrators disagreed to a greater extent than teachers regarding a lack of emphasis hindering analysis of data to improve student achievement. Furthermore, the Tukey HSD indicated that elementary school teachers disagreed to a greater extent than high school teachers that a lack of emphasis is a factor that hinders analysis of data to improve student achievement. All groups, except for middle school teachers and high school teachers, perceived that a lack of emphasis did not prevent the use of data.

The qualitative analysis suggested data may be inaccessible to teachers and, therefore, may affect the process and outcomes of decision-making. Furthermore, the leadership of the school was seen to dictate the level of emphasis data play in the

organization's actions. Although teachers were familiar with the school improvement plan, the specific goals could not be specified by the high school focus group.

Documenting and communicating the progress of school goals was dependent upon accountability and whether the administrators were pushing the effort or not, according to the high school focus group participants. Teachers across grade levels held a view that data are less accessible to teachers than to administrators or to other teacher leaders within the building. Central office administrators spoke about the efforts for greater emphasis and accountability through all grades. High school teachers, however, spoke about a lack of emphasis regarding data than other groups. This would be consistent with the findings from the questionnaire.

#### *Lack of Resources*

The observed differences among the means were significant at the .05 level with the ANOVA between teachers and administrators and between teachers at different levels. The Tukey HSD indicated a significant difference between teachers ( $M=2.5$ ) and building level administrators ( $M=1.9$ ), and also between elementary teachers ( $M=2.2$ ) and high school teachers ( $M=2.7$ ). All groups, however, disagreed that a lack of resources posed a hindrance toward using data to improve student achievement.

Teachers generally believed that they had adequate resources to use data, although time was a limiting factor. Building administrators reflected upon a lack of technology that would give them quick access to information in order to make decisions. The high school focus group commented that although they had resources and training they did not necessarily know what resources they had at their disposal. One high school teacher who had previously taught at a larger school district noted that there were more resources in

the previous district such as curriculum specialists focused on one curriculum.

According to the teacher and administrator focus groups, however, the district seemed to have resources available to those that had the desire to take advantage of them.

### *Lack of Time*

The observed differences among the means were nonsignificant among teachers and both groups of administrators. However, the observed differences among the means were significant at the .05 level with the ANOVA between teachers at different levels. The Tukey HSD indicated a significant difference between elementary teachers ( $M=3.1$ ), middle school teachers ( $M=3.0$ ), and high school teachers ( $M=3.8$ ). As the means suggest, high school teachers agreed to a greater extent that a lack of time hindered their efforts at analyzing data. Thus, they perceived that a lack of time was a factor inhibiting them more than elementary and middle school teachers. Central office administrators ( $M=3.4$ ) and teachers ( $M=3.2$ ) perceived that time was a barrier, unlike building-level administrators ( $M=2.6$ ).

The lack of time as a barrier toward using data was consistent across groups with regard to the open-ended responses on the questionnaire and also with the focus groups. When asked to respond to the conditions that would preclude the use of data to make decisions that impact student achievement, teachers and administrators overwhelmingly listed time. Specifically, time to plan with departments and/grade levels, time to analyze data that is taken due to other commitments and responsibilities, and receiving the information to make decisions in a timely manner were listed as factors that would assist in the analysis of data. Data are accessible to elementary teachers, but due to a lack of time, “that stack of data sits in a pile somewhere.” All teacher focus groups concluded

that if data were accessible, time would continue to be a limiting factor toward the use of data to improve instruction and to meet the needs of students.

During the focus groups, central office administrators noted the importance of being able to analyze data by question and by subgroups in order to improve instruction. They said that they did not have the time “to get into as great of detail” with the data as they preferred. Time to analyze data was discussed as being a limiting factor for central office administrators, and it was also believed by central office administrators that time is an issue for teachers to use data. “Time is a huge barrier,” according to one central office administrator.

#### *Lack of Training*

The observed differences among the means were significant at the .05 level with the ANOVA between teachers and administrators. The Tukey HSD indicated a difference between teachers ( $M=2.6$ ) and central office administrators ( $M=2.0$ ). Central office administrators more strongly disagreed that a lack of training was a barrier toward data-based decision-making. The means of all groups suggested that the groups perceived that a lack of training was not a barrier toward data-based decision-making.

Although the teachers felt comfortable with using data despite the lack of time, building administrators acknowledged the need to train staff. Training consists of not only reviewing data to identify strengths and weaknesses of the students, but also training teachers on instructional techniques to address those areas. Building administrators also acknowledged that training is necessary for them to fulfill their roles because, “sometimes the numbers don’t make sense or we’re not digesting what it means.” Training to disaggregate standardized test scores by question, subgroup, and student was

also seen as valuable by all focus groups. A call for “staff development, in-service, and faculty meetings to present disaggregation of [standardized test scores] for each content area,” in order to assess strengths and weaknesses was a response by an elementary teacher on the questionnaire. Elementary teachers, however, commented on the number of inservice training and workshops available for teachers to improve, and noted the availability of staff development for all teachers.

#### *Gap between Researcher and Practitioner*

The observed differences among the means were nonsignificant between all groups. All groups generally disagreed that a gap between researcher and practitioner existed that would hinder the analysis of data at the classroom, building, or central office level.

One middle school teacher during the focus group interview, however, noted the weak partnership between the schools and the universities. The teacher had come from another school district where the university was “constantly showing us how to use data.” Teachers across grade levels called for stronger partnerships with colleges to “use that data to come up with new approaches to teaching.”

#### *Bias*

The observed differences among the means were found to be nonsignificant between all teachers and both groups of administrators regarding the impact of bias on data-based decision-making. The means of teachers and administrators (teachers,  $M=3.3$ ; building-level administrators,  $M=3.0$ ; central office administrators,  $M=3.2$ ) indicated the perception of a level of bias from others that would hinder the use of data. The observed differences among the means were significant at the .05 level between teachers at

different levels. The Tukey HSD indicated a significant difference between elementary school teachers ( $M=2.8$ ) and both middle school teachers ( $M=3.5$ ) and high school teachers ( $M=3.6$ ). Elementary school teachers did not perceive bias as impacting the use of data to improve student achievement. Middle school and high school teachers tended to perceive bias as a barrier. Thus, all groups, except for elementary school teachers, tended to perceive a level of bias as a barrier.

The focus groups tended to support the perceived level of bias by members outside of the school district. Middle school teachers noted that politicians use data to support their political platform without ever visiting the school to understand why the condition exists. Further, the data from standardized test scores are not viewed holistically, according to teachers. Different schools are compared against one measure without understanding all of the reasons why they differ. Teachers also noted that different classes are compared without considering attendance rates or the initial placement of children into a class. However, a building administrator said, “It is important to be consistent when measuring progress across grade levels and to make sure that data are not used against other teachers.”

Central office administrators also noted that data were not viewed critically by the media because all factors are not taken into consideration when reporting out results. Central office administrators also pointed out that, although data may not be used against them, people who want to move to the area call to find the SAT averages, number of dropouts, and the number of graduates. Schools across the state are being compared as a result of the NCLB legislation. “The newspaper needs to come in here and walk down the halls. There is a lot more going on here than [standardized testing],” according to one

elementary school teacher. Bias was found to be perceived to exist within the organization.

### *Lack of Validity*

The observed differences among the means were nonsignificant between all groups at the .05 level. Thus, there was no evidence that the groups differed regarding their perceptions regarding the lack of validity of data used to improve student achievement and/or teacher performance. Although all groups tended to disagree that there was a lack of validity of the data that would hinder data-based decision-making, open-ended responses on the questionnaire and focus group interviews illustrated other concerns regarding standardized testing.

Teachers noted on the open-ended responses that standardized test scores gave a “clear picture,” however, one teacher expressed concerns that scores cannot be compared from year to year because comparisons would be made regarding different children. “It is like comparing apples and oranges.” The idea that comparing different children over the years and comparing students across grade levels and schools where teachers are teaching differently was a concern throughout all focus groups.

Teachers tended to express concern that standardized test scores are not the only means to assess children and they do not give a broad scope of what children can do. “We are basing our whole idea of whether a child is successful on whether they pass the [standardized tests].” The data were seen as valuable, but limited to lower-level thinking. A teacher noted on the questionnaire that data from her own tests and assignments provided a picture of the “whole student,” rather than limited view provided by the standardized test scores. The standardized tests, according to the high school teachers,

are “generic” in that they do not address students’ different learning styles and testing abilities. A middle school teacher said that the data were useful, but “look how much more there is.” Middle school teachers also noted that standardized test scores may detract from the writing process due to the focus on successfully taking a multiple-choice test. The elementary teacher focus group noted that the process of standardized testing is diminishing the chance to use the results for improvement. That is, as testing increases, the teacher “rushes” to teach the curriculum without time to extend certain concepts or to remediate.

Teachers noted that assessments given throughout the year have greater value by uncovering student strengths and weaknesses to change instruction to meet student needs. Elementary teachers spoke of this kind of assessment data as being more valuable than standardized tests that are given at the end of the year. All groups shared this concern within the focus groups. Both building-level administrator and central office administrator groups communicated the need to assess children throughout the year by mapping the curriculum and using multiple data points to assess instruction and learning. Administrators noted the need to disaggregate standardized test scores by race, ethnicity, socio-economic status, and programs that the students have been exposed to.

### Facilitative Strategies

#### *Systemic Effort*

The observed means differed significantly at the .05 level between teachers and administrators, as well as among teachers at different levels. The Tukey HSD indicated a significant difference between teachers ( $M=3.1$ ) and building-level administrators ( $M=3.6$ ) regarding the level of systemic effort to promote data-based decision-making.



Building-level administrators more strongly agreed than teachers that there was a systemic effort to improve student achievement. The Tukey HSD also indicated a significant difference between elementary school teachers ( $M=3.4$ ) and high school teachers ( $M=2.8$ ). The means of the groups suggest that elementary school teachers perceived a systemic effort to improve student achievement while high school teachers did not. The high school teacher and middle school teacher subgroups were the only subgroups that disagreed regarding the presence of systemic effort. All other groups measured a mean greater than 3.0.

The focus groups and open-ended responses present a perception of the need for systemic effort toward the use of data. As noted above with the questionnaire, elementary school teachers indicated a greater degree of agreement regarding systemic effort, and mentioned during the focus group the amount of time spent on the “extensive” school improvement planning process. During the focus group interviews elementary teachers discussed the data about each child that are passed from grade level to grade level. This was seen as positive action to address the individual child’s needs in the classroom. High school teachers, however, did not consistently get information from the middle schools and middle school teachers did not get adequate information for the elementary schools according to the focus groups. Middle school teachers also spoke about how grade levels work independently rather than collectively across grade levels. Concerning staff development, however, a middle school teacher said, “I think that we are very well aware of what the data are and why it is out there and what we are going to do with it in order to make improvements.” As far as across schools, one middle school teacher was concerned that, “all the schools are looking at data without any connection

with the other schools.” The middle school focus group also reiterated this with concerns about curriculum and the need for coordination. “I find it amazing that I can go from school to school and everyone is doing something different,” said a middle school teacher. The middle school group felt the role of coordinating efforts was charged to central office, but defended them, noting the time constraints that central office personnel also face. Although there was a call for greater systemic effort in all groups, for example benchmark testing and sharing data, the agreement found on the questionnaire for all groups except for high school and middle school teachers was evidenced also by the focus group interviews.

### *Mission*

The observed differences among the means were significant at the .05 level between teachers and administrators, as well as between teachers at different levels. The Tukey HSD indicated a significant difference between teachers ( $M=3.7$ ) and building level administrators ( $M=4.2$ ), as well as between elementary school teachers ( $M=4.0$ ) and both groups of middle school teachers ( $M=3.6$ ) and high school teachers ( $M=3.5$ ). However, all groups agreed that the school and/or the district had a mission that facilitated the use of data to improve student achievement and/or teacher performance.

### *Vision*

The observed differences among the means were nonsignificant among all groups. Thus, there was no evidence that the groups differed regarding their perceptions of the vision as a facilitative strategy that was used to improve student achievement and/or teacher performance. The means of all groups suggested that the school and/or district had a vision that facilitates the use of data. Although there was general agreement among

focus group respondents that a general vision exists, middle school administrators were concerned that the middle school philosophy was jeopardized by the push toward a junior high model given the nature of high stakes testing.

### *Values*

The observed differences among the means were nonsignificant among all teachers, building-level administrators and central office administrators. Thus, all groups agreed that the values of the school and /or district facilitate the use of data to improve student achievement. The observed differences among the means were significant at the .05 level between teachers at different levels. The Tukey HSD indicated that the elementary school teachers ( $M=4.5$ ) differed significantly from middle school teachers ( $M=4.2$ ) and high school teachers ( $M=4.1$ ). All groups perceived values as a facilitative strategy, but elementary school teachers perceived the values impacting their efforts to a greater degree.

Teachers and administrators emphasized the high expectations that all staff members have for the children. "I look around at those people that I work with and I think everyone's motivation is to get every child to achieve as best we can," according to one elementary school teacher. Throughout all focus groups, respondents agreed that the staff members held values that include high expectations for the children and the staff and also the belief that all children can learn.

### *Collective Inquiry*

The observed differences among the means differed significantly at the .05 level between teachers and administrators. The Tukey HSD indicated differences between elementary teachers ( $M=3.9$ ) and high school teachers ( $M=3.2$ ). The observed

differences among the means were nonsignificant between teachers and administrators at the .05 level using the ANOVA. The means from all groups regarding collective inquiry lean toward agreement.

The middle school focus group identified the disaggregation of data as the most important information for improving teacher and student performance. Identifying the weakest areas for the school allowed the organization to focus on specific strategies. It is necessary, according to one building-level administrator, “that all stakeholders know what the data means and what can best be done with it.” Although the data were seen as important to all groups, receiving the information posed a problem. According to building administrators there is a “breakdown in the trail of communication.” Information is present, “but it is not gotten to the right hands at the right time.” Furthermore, a building-level administrator proposed to give information to students so that they would understand what the data says about their learning. “It is their education, and they have to own their learning.” It was also suggested that parents be educated to understand the information given to them about their child’s progress.

### *Collaboration*

The observed differences among the means were significant at the .05 level between teachers and administrators and also between teachers at different levels. The Tukey HSD indicated significant differences between teachers ( $M=3.4$ ) and building-level administrators ( $M=4.2$ ). Overall building-level administrators agreed to a greater degree than teachers on collaboration within the school. Significant differences at the .05 level were also found between elementary teachers ( $M=3.9$ ) and both the middle school

teachers ( $M=3.3$ ) and high school teachers ( $M=3.1$ ) regarding collaboration being present within the school and/or district.

High school teachers discussed the value of having teams like at the middle school level so that information about students can be shared. The high school focus group commented that collaboration was within the specific departments but that intra-department collaboration was limited. The elementary groups responded to the open-ended question regarding existing conditions that facilitate the use of data by noting the weekly meetings to collaborate with other teachers to discuss children and quarterly goals. According to a building-level administrator, information should not be limited only to the staff. "Make sure all the stakeholders know what the data means and what can best be done with it."

#### *Action and Experimentation*

The observed differences among the means were nonsignificant between all groups at the .05 level. Thus, there was no evidence that the groups differed in their perceptions of action and experimentation in the school and/or district and the use of data to improve student achievement. All groups tended toward agreement regarding action and experimentation, with means ranging from 3.7-4.0.

According to one high school teacher, "I don't necessarily think there's a whole lot of encouragement to take that risk. I think we would be supported if we did, but at least I've never felt pressured or directed to do so." The high school focus group stated that there was a need for leadership to encourage risk-taking and experimentation using data to drive action. "Some teachers need to be encouraged - strongly encouraged - to try something new." Elementary teachers noted the freedom to take risks, "I don't feel that I

am doing something that I'm not supposed to if I take a risk," emphasizing that taking risks would not result in being punished by the building-level administrators.

### *Continuous Improvement*

The observed differences among the means were found to be nonsignificant between teachers and administrators at the .05 level. Thus, both teacher groups and building and central office administrators tended to agree that the district and/or school provided a culture of continuous improvement that facilitated the use of data to improve student achievement. Significant differences at the .05 level using the Tukey HSD were found between elementary teachers ( $M=4.0$ ) and both middle school teachers ( $M=3.7$ ) and high school teachers ( $M=3.5$ ) regarding the level of continuous improvement present within the school and/or district.

Using tests throughout the school year to assess students, as well as training teachers, was suggested in the building-level administrator focus group. "We can make determinations about teacher performance, and how to best support teachers who aren't having classes who score well." Central office administrators discussed the need for consistency among schools and providing the technology and resources to facilitate the use of data in the regular assessment of students.

### *Focus on Results*

The observed differences among the means were nonsignificant at the .05 level between teachers at different levels. However, all groups agreed that the school and/or district focused on results. The observed differences among the means differed significantly at the .05 level between teachers and administrators. The Tukey HSD indicated a significant difference between teachers ( $M=3.7$ ) and building-level

administrators ( $M=4.1$ ) at the .05 level. The range of means between teachers was 3.5-3.9; between teachers and administrators it was 3.7-3.9.

Weekly meetings to focus on the results of the standardized assessments were seen as a way of helping to understand what students performed well on the standardized tests according to one high school teacher. Using results by tracking the progress of individual students was discussed repeatedly in the elementary focus group. Tracking progress and identifying students based upon the needs of students was seen as difficult by high school and middle school teachers, as well as building-level administrators. The transition between schools makes it difficult for information to be transferred; and thus, the data become less accessible.

### *Leadership*

The observed differences among the means were significant at the .05 level between teachers and administrators and also between teachers at different levels. Post-test analysis using the Tukey HSD indicated a significant difference between teachers ( $M=3.3$ ) and building level administrators ( $M=4.0$ ). A significant difference was also found between elementary teachers ( $M=3.7$ ) and middle school teachers ( $M=3.1$ ).

Teachers across grade levels noted the need for leadership to focus attention on the value of data to improve student achievement. In order for the information to make an impact, one high school teacher commented, "I believe that the building administrator would have to say to central office, 'We need that information for our school.' And the school administration would have to give it to curriculum leaders with directions on what teacher should do with it." A middle school teacher commented, "That it seems to me that central office should coordinate schools." However, teachers spoke about how they

have become leaders by using data to make an impact on their school, such as promoting the need to incorporate more reading to learn strategies. Teachers across grade levels spoke about their building administration as being supportive and giving positive feedback regarding the data. However, building administrators stated that, "Data comes to us late and this impedes the organizational planning and the implementation of goals and objectives."

### Summary

Although statistical differences existed between the groups, all facilitative strategies were perceived to exist. Fear, lack of time, and bias were three constructs that were viewed by some groups as a barrier within the organization. Elementary teachers tended to perceive to a lesser extent than other teachers the presence of barriers and also perceived to a greater extent the level of facilitative strategies. Building-level administrators perceived a greater level of facilitative strategies than teachers overall and central office administrators. The teacher group was statistically different than building-level administrators, perceiving to a lesser extent the existence of facilitative strategies. However, all groups perceived that all facilitative strategies were present within the organization.



## Chapter 5: Summary, Discussions, and Recommendations

The findings from this study illuminate the varying differences and similarities of perceptions among administrators and teachers regarding the barriers and facilitative strategies that may impact data-based decision-making within the public school. Through the qualitative and quantitative analysis of the perceptions of elementary teachers, middle school teachers, high school teachers, building level administrators, and central office administrators, the following research questions were pursued:

1. What are the differences in perceptions among teachers and administrators (building and central office) regarding inhibiting factors, facilitative strategies, and needs with regard to effective use of data to improve student achievement?
2. What are the differences in perception among elementary, middle, and high school teachers regarding inhibiting factors, facilitative strategies, and needs with regard to effective use of data to improve student achievement?
3. What are the differences in perception between building-level and central office administrators regarding inhibiting factors, facilitative strategies, and needs with regard to effective use of data to improve instruction?

Although the results were found to be significant and have implications upon the education practitioner in the field and those in higher education, it is important to remember that the study is based upon the perceptions of individual participants. The survey instrument and focus groups were intended to gain an understanding of how the individuals perceived whether the barriers and facilitative strategies existed within the classroom, school, and/or school district. Furthermore, the data informed the researcher of how and to what degree the respondents perceived the impact of the barriers and

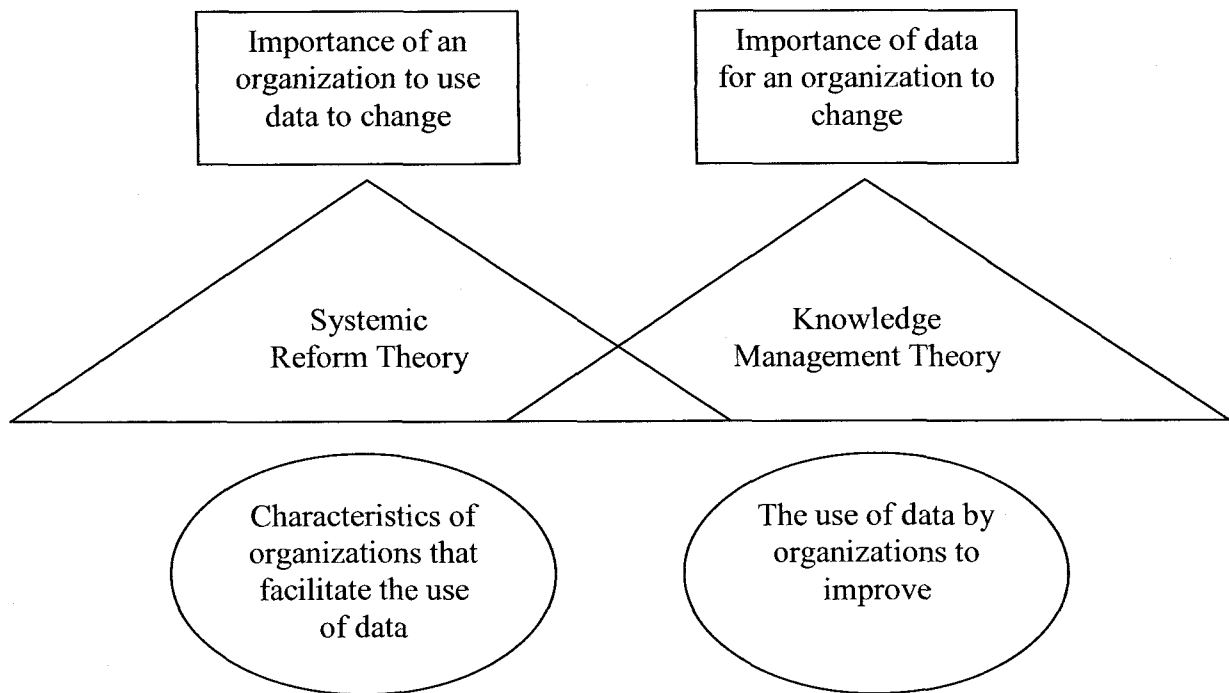
facilitative strategies upon data-based decision-making, as well as student achievement and teacher performance. The perceptions of members of an organization do impact how a person responds to the expectations that are held (Wrightsmann & Deux, 1981). In effect, according to modern social psychology, an individual's perceptions of an organization impacts how he or she behaves. Furthermore, people react and respond to the expectations the organization holds. Therefore, there are important implications for understanding the perceptions of individuals and groups.

Overall, the key stakeholders within the organization tended to believe that the facilitative strategies are present for using data to improve the school. That is, structure, climate, and other dynamics tend to be in place in order for data-based decision-making to exist. Although, some barriers are perceived to exist, the organization seems to be able to use data effectively given the favorable ratings of the specific constructs and the finding that members within the organization are able to identify how data are used and the plans to more effectively use assessment information. Systemic reform theory draws upon the need of the many stakeholder groups to be involved in the decision-making of the organization. A lack of time, the presence of fear, and the threat of bias are the main barriers that may keep the organization from using data effectively. Although only three barriers were found to be present according to the perceptions of the respondents, they nevertheless may impact the effectiveness of data by the organization.

Some focus groups brought up the need to transform the data into practical information. The three barriers that were present may impact the effect of the available data and even limit use of data and, therefore, make it difficult to use data to make informed decisions within the classroom, school, or district. Knowledge management

theory describes the need for an organization to transform data and information into practical knowledge (Thorn, 2000). If data do not make it into the hands of administrators or teachers in a practical form to improve student achievement and teacher performance, the assessment data cannot be readily used to change the school. The barriers existing may have an impact upon the organization's use of data because they cannot be transformed into knowledge. Figure 1 presents the theoretical framework that grounds this study. The structure of the organization helps to facilitate the use of data. The barriers perceived by the members of the organization impact the school's use of data even if the characteristics of the school, collaboration, mission, vision, and so on, are in place.

Chart 1. Theoretical framework.



The characteristics necessary for the organization to use data and the transformation of data by the organization are interdependent. One improves the other. Data that are transformed into valuable and useful information can be used to make decisions that impact the overall characteristics of the school. The structures and culture of the organization and the involvement of the stakeholders within the organization influence whether the data can be changed into valuable information and whether the information is used to make decisions that improve the school. A barrier within the school may impact this balance and decrease the organization's capacity to effectively use data.

#### Summary of Findings

An analysis of data showed perceptual differences between administrators and teachers and also among the teachers and the levels that they serve. For example, central

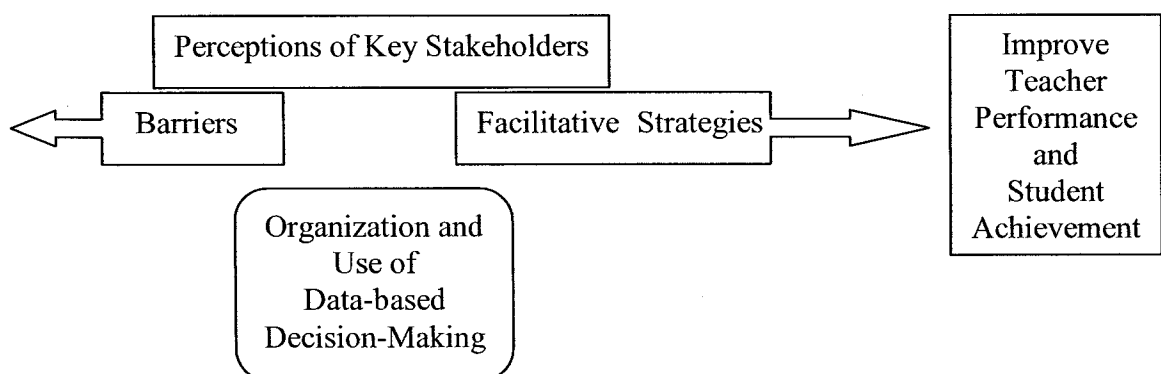
office administrators disagreed to a greater degree than teachers on a lack of training, lack of focus, and a lack of emphasis as barriers. However, both groups disagreed that any of these barriers was present in the organization. Fear, lack of time, and bias were the only barriers perceived by any groups as existing within the organization to prevent data-based decision-making. Although building-level administrators and central office administrators acknowledged the need for greater training in the focus groups, the questionnaire showed that administrator groups disagreed that a lack of training existed as a barrier. It is important to note that building-level administrators differed significantly from teachers with regard to the level of resources available; however, both disagreed that this was a barrier. Building-level administrators disagreed to a greater extent than teachers that a lack of resources was a barrier to data analysis, but again, both groups perceived that this was not a barrier. Furthermore, teachers, building-level administrators, and central office administrators all agreed that a lack of time was a barrier. However, all groups perceived that all facilitative factors existed within the organization except for the high school teacher group's perception of a lack of systemic effort.

Three barriers were found in the quantitative analysis to exist within the school or district according to the perceptions of the different groups: fear, lack of time, and bias. Although facilitative strategies were found to be present overall and most barriers were found not to exist, the presence of even one barrier may pose concern. The barriers and facilitative strategies were not weighted equally, but were constructs found through a narrative review of the literature. A lack of time, for instance, may threaten access to data to make decisions and the efforts to use data to make informed decisions. Similarly,

fear may prevent administrators from effectively using data with teachers to improve instruction. Finally, bias may distort the perceptions of all stakeholders regarding data as a threat rather than a tool. Thus, the organizational climate and structure may be threatened by the presence of any specific barrier.

Although the use of data to make informed decisions to improve the organization's capacity to reach the defined goals holds promise, the process of implementing an organizational structure and developing a culture and climate that facilitate the use of data within the public schools can be challenging. The respondents generally agreed that the school and/or district had the cultural components necessary to facilitate greater student achievement, such as the analysis of perceptions regarding facilitative strategies suggest; however, barriers exist that limit the most effective use of data within this particular organization. All groups generally agreed that all of the facilitative strategies existed within the organization. Figure 2 illustrates the relationship between the perceptions of key stakeholders regarding the facilitative strategies and barriers that either hinder or improve school improvement.

Chart 2. Significance of the study.



The following outlines basic concerns regarding the barriers perceived by individuals and the groups. These are mentioned because of the emphasis that they received throughout the focus groups and within the open-ended responses. The qualitative analysis brought forth several key themes as follows. A lack of time to analyze data exists even when data are available. A call is made for guidance and direction to constructively use data, but is hindered by the lack of time afforded to teachers and administrators. The validity of the standardized tests, the standard used to evaluate the schools, outweighs the power and influence of other assessment tools that allow for more immediate feedback. Fear of data manifests itself in respondents' expressed anxiety and the use of data by others for purposes other than student achievement. Although the culture and climate seem to be poised to use data to improve student achievement and teacher performance, according to the respondents, barriers do exist that may preclude the schools from accomplishing this task.

#### *Fear*

Although data may be used to impugn (Kinder, 2000), punish (Schmoker, 1999) or attack (Bernhardt, 2000), teachers and administrators spoke more of a general unease stemming from the use of data by others from outside the system. The general mood of teachers was favorable toward administrator and the organizational use of data to improve school and student performance. Concern came from others outside the district using data to cast blame. Teachers understood the importance of data, but noted that others take the results of standardized tests out of context to benefit their own political or economic purposes and at times use the data to enflame.

*Bias*

Again, teachers and administrators perceived that groups or individuals manipulated data for purposes other than to improve student achievement. A common perception was that others did not accurately present the complete picture of the school because not all data were used to evaluate and analyze the school. Although a concern, it was understood that this practice could not be prevented due to the culture in which schools currently exist. Teachers and administrators understand the political climate, but also feel that data can be used for their purposes to improve the school. Because others outside the district used data to evaluate the schools, the perception of data by stakeholders within the schools may be negatively characterized. Understandably, teachers and administrators noted the importance of other assessment data to improve schools. This may positively impact the school by using other data in tandem with standardized test data giving ownership of data that is not used to compare schools against each other.

*Lack of validity*

The teachers and administrators understood the importance of standardized assessments, but viewed it as one part of the process by which data are used to improve student learning. How teachers perceive the validity of data from large-scale assessments influences how they use the assessments, according to Cromeey (2001). Within this study teachers perceived standardized tests as only one part of the data components that facilitate school improvement. Teachers and administrators, then, focused upon tests that would measure progress throughout the year in order to improve student achievement and, in the end, improve standardized test scores. While, standardized test data may



overshadow the importance of other data used daily within the classroom; the value of classroom assessments was evident in the perceptions of teachers and administrators. Teachers and administrators are able to temper the urgency placed upon them with the results of standardized assessments by using classroom data to improve student performance on a continuous basis.

### *Lack of Time*

Time was found to be a critical element that greatly impacts the effective use of data by teachers and administrators at all levels. Finding the time to analyze data and making the data more accessible was a charge by all groups. Although time was one of only three barriers found to exist within the different groups overall, it can pose a threat to the capacity of the school and district to analyze data. The accessibility of data was also viewed as a component that impacted the teachers' use of time. Teachers and administrators believed that if data were accessible, greater time would be given to using the data to impact decisions.

### *Implications for the Practitioner*

A body of research has demonstrated the value of data use for student achievement, school improvement, and school effectiveness. The use of data to define the needs of subgroup populations and to understand the instructional strategies and programs that would address the students' needs is important in bringing success to all students. Data use has a positive impact upon teachers by creating a more collaborative culture (Feldman & Tung, 2001), creating a positive mindset (Earl & Katz, 2002), as well as raising teacher expectations (Armstrong & Anthes, 2001). The impact of data upon the instructional and leadership decisions within a school and district is evident. The

perceptions of barriers and strategies that would impact the use of data is important to understand in order to make changes in leadership, staff development, resources, and structure. The following outlines recommendations based on the findings of the study.

1. Provide time at all levels to analyze and use data. A common factor presented by Holcomb (1999) was the lack of time to plan individually and collaboratively. The evidence within the present study further underscores the demands of time placed upon teachers and administrators, and the priorities they must make that limit their ability to access and use data to impact instruction. All groups, teachers at all levels, as well as building-level administrators and central office administrators, believed time was a barrier. The capacity to meet the expectations by using the data may simply not exist with time as a major limiting factor. Although Noyce, et al. (2001) found time and resources to be a valuable commodity to focus data upon student achievement, more studies have noted access to data, as well as training, to be a limiting factor. Time is the critical resource needed in order for access and training to be implemented.

2. Analyze data from many different sources without being dependent solely on standardized tests to evaluate progress. Although the respondents generally valued the results from standardized assessments, they recognized that they serve a limited purpose. Standardized assessments evaluate what has happened during the year rather than how to change throughout the year. Standardized assessments also do not take into account the many other factors that impact student achievement, such as attendance and transience. Other data sources were shown to be important to teachers and administrators in gaining a clearer understanding of how the specific school functioned. All focus groups spoke about assessments that assisted in aligning instruction vertically, across grade levels, and

horizontally, within each grade level. Central office administrators and building-level administrators spoke about benchmarked assessments, whereas teachers spoke about their own assessments. These assessments would be aligned with the curriculum and assist teachers and administrators by providing more immediate feedback.

3. Encourage leadership at all levels and offer greater systemic support.

According to Wayman, et al. (2005), the use of data to improve schools is sustainable only when proper supports are built throughout all levels, but more typically the support system does not exist within schools. Self-efficacy evolves within school leaders who become more involved in the use of data to inform actions toward school improvement (Earl & Katz, 2002). It was found in this study that teachers wanted direction and guidance in making a difference and that the use of data is an important aspect of making critical decisions that impact learning. Although the teachers wanted leadership, it was also recognized the time constraints placed upon central office administrators and building level administrators that would preclude the leadership required and desired.

4. Align curriculum and develop assessments in order to adequately inform all teachers. All groups called for greater alignment of the assessments, by using an articulated curriculum with periodic measures to assess progress. Use of assessments by teachers or districts at specific times would allow administrators to evaluate instruction and teachers to monitor student learning. Teachers called for consistency in curriculum and assessments across grade levels and across schools. Providing teachers with practical information based upon a written curriculum framework would be powerful. Testing students and training teachers how to use the results from the assessments to reteach and/or improve instruction would also improve student achievement.

5. Provide training and resources. Although teachers did not generally perceive lack of training to be a barrier, educators have not had the time to practice using data to make informed decisions about instruction and student performance. All groups perceived time as a barrier to using data and, thus, have not had access to the training or resources to use data within the questionnaire, focus groups, and open-ended prompts. Teachers and administrators are considered learners within the culture of a learning community (DuFour & Eaker, 1998); therefore training at all levels is important (Bernhardt, 2004). Whether some teachers perceived that they are comfortable with using data, other studies have shown that teachers have a great amount of data to analyze without the necessary training to use the data effectively (Olson, 2003). Ongoing training and the use of data are critical to improve student achievement.

6. Provide greater access to data. The amount of data that is being produced through standardized tests alone is increasing, but the results are not organized to clearly depict the problems, successes, and the needs of the school (Olson, 2003). Without the transformation of data into useful information, access to the data is limited. Not all teachers have the same comfort level with using data to evaluate student progress; therefore the data are not being used systemically throughout the school. It was noted through the focus groups that data were available in the raw form. Information must become knowledge, whereby understanding can be developed to focus action (Petrides & Modine, 2003). The data must be able to frame the context where action can be aligned with a plan. Mason (2003) found that if teachers have greater access to data then data were used for instructional purposes. The data must be accessible, but also in a form that is useful.

### Recommendations for Further Research

The study explored many different variables regarding the perceptions of barriers and facilitative strategies that, in turn, brought forth ideas and concerns for future research.

One recommendation is to extend the generalizability toward other school districts or to use the questionnaire throughout many school districts. The logical extension of this study would be to replicate it throughout a state to understand the perceptions of individuals and groups in a less limited setting. This would address the trends of data-based decision-making and the impact of the state requirements of standardized testing and the use of those results.

Following another avenue, future studies may focus upon the barriers, rather than include the facilitative strategies. Focusing on barriers would allow researchers to understand in greater depth their presence and impact upon an organization. Within this study the barriers tended to be discussed to a greater degree in the focus groups. Furthermore, the analysis of data from the questionnaire noted that no groups disagreed that a facilitative strategy existed within the organization except for two subgroups, high school teachers and middle school teachers. Limiting the questionnaire to the defined barriers and increasing the number of questions aligned with the specific barriers would offer greater depth and bring greater reliability to the results.

Another analysis could be made regarding the levels of student achievement within each school and the level of barriers and facilitative factors that prevent or encourage the use of data to improve student achievement and/or teacher performance. The demands of accountability by federal, state, and local entities have increased

awareness of having to provide evidence of school improvement and effectiveness (Holcomb, 1999). The extent of barriers and or facilitative strategies may impact whether a school or school district is achieving the standards.

The size of the school district may also play a part in the use of data. The amount of resources in school divisions may be reflective in the numbers of students the district serves. A growing school division may not be prepared to assess the increasing amount of data that enters its system. However, a large school division may be better suited to evaluate the data and provide time and training to teachers to use the data to improve instruction. Furthermore, a small school district that has a stable population may better serve its students because the data regarding each student are consistent. Further analysis of district size and the use of data may be of interest in a further study.

Other recommendations for further study build from the broad scope that this study has presented. Focusing upon select barriers or facilitative strategies that may more directly impact the use of data in effective decision making would allow a deeper understanding of the particular factors. Having a greater understanding of the particular conditions that prevent or promote the use of data may positively impact the practitioner in planning and organizing the school.

### Summary

Student and school data are posed to be an invaluable commodity in facilitating improved student achievement and teacher performance. Understanding the barriers and facilitative strategies that exist within a school district may allow a district to systemically improve the organization to take advantage of the strategies and to overcome the barriers. The perceptions of individuals and groups help to illuminate the

reality of the organization's climate, structure, and culture. Continually striving to understand the organization and the children it serves will foster improvement.

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## APPENDIX

### Appendix A Focus Group Protocol



Moderator's Guide  
Analysis of Data-Based Decision-Making:  
The Perceptions and Roles of Teachers and Administrators

Preamble

Thank you very much for agreeing to participate today in this focus group. I am Byron Bishop and I am a doctoral candidate at The College of William & Mary working on a dissertation titled: *Analysis of Data-Based Decision Making: The Perceptions and Roles of Teachers and Administrators*.

Each of you has been selected because you represent a group of teachers or administrators.

The purpose of this focus group is to gain a better sense of the opinions of those that work in the schools about data or information and how it is used to better student performance and academic achievement. There are much data that can be used by teachers and administrators to help us meet the needs of students. I am wondering what are the barriers that may prevent you from using data or information to increase teacher performance and what are some things in the school or school division that help you to use data. Basically, what are the obstacles and what are the things in place that facilitate you to use data.

The data that I collect will remain confidential and anything that is in my research will not identify you by name or school. Only you, the other focus group participants, and others that you have spoken to about your participation know that you are taking part in this interview. I will use this data to understand better your perceptions about data-based decision-making.

Ground rules

Because I am taping, I may remind you occasionally to speak up and to talk at one time so that I can hear you clearly when I review the session tape. The tapes will be transcribed and only I will hear the tapes. I am your guide, but I want the interaction to flow among you - let's have lots of discussion and debate.

Each time I ask a question, there is no need for everyone around the table to respond. However, it is important that a wide range of ideas is expressed. If you would like to add to an idea, or if you have an idea that contrasts with those that have been aired, that is the time to jump into the conversation. You do not have to go in a circle. There is no such thing as "your turn" – it is always your turn.

Also I would like for us to agree that what is said in this interview remain confidential. I am requesting that we respect each other's need for anonymity so that we feel free to speak freely about the questions.

Introductions:

1. Let's go around the room and briefly introduce yourself giving a pseudonym that you will write on a name card. Also give your position and grade level.

Use of data:

1. When you hear the term data, what comes to mind?

2. Of those examples, in your opinion, what is the most important type of data to improve teaching and student achievement?
3. What types of data does your school use to help improve student achievement?
4. In your school how is information about how students are performing used to improve teaching?
5. What have you done to use data to improve your teaching?

Barriers to using data:

1. How is data used to focus the organizations actions?
2. The SOL's are meant to measure student achievement on a given curriculum. Is this valuable data? How do you use this data to improve teaching to students?
3. Do others, outside the schools or within the schools, use information about student progress against you? Why?
4. Is information from researchers and universities useful to you? How do you apply it to your teaching?
5. How does the administration focus on using data to improve student achievement?
6. Respond to this idea from Victoria Bernhardt -- She is a trainer for educators to use data. She feels that most schools look at scores only briefly and then put them away until the following year.
7. What types of things limit you most from using information on student achievement – lack of time, lack of resources, lack of training or other things?

Facilitative strategies to using data:

1. How often do you share information about how your students are performing? How is it shared?
2. What are some general areas within your school that you address by measuring student progress?
3. What are the values held in your school regarding how students achieve?
4. How familiar are you with your school's plan to use data to improve student achievement?
5. Looking at the data for your school do you know if your school is making progress toward its goals and objectives?
6. Do you feel that you can take risks in teaching and improving teaching?
7. Do you feel that the district is working with you to help you teach better?

Needs to use data:

Thinking back on our discussion, are there any ways to improve the use of data to improve student achievement and teacher performance?

Closure:

I would like to thank you for your time and your willingness to be a part of this focus group.

## Appendix B

### Letter to Expert Panel

Dear [Expert Panel Member] –

Thank you for taking the time to review the questions for my survey I have developed for my dissertation entitled *Analysis of Data-Based Decision-Making: The Perceptions and Roles of Teachers and Administrators*. The survey was developed to answer the following research questions:

1. What are the differences in perceptions between teachers and administrators (building and central office) regarding inhibiting factors, facilitative strategies, and needs for the effective use of data to improve student achievement?
2. What are the differences in perception between elementary, middle, and high school teachers regarding inhibiting factors, facilitative strategies, and needs for the effective use of data to improve student achievement?
3. What are the differences in perception between building-level and central office administrators inhibiting factors, facilitative strategies, and needs for the effective use of data to improve instruction?

I have provided a list of the items from the questionnaire correlated with each specific facilitative strategy and barrier. A brief description of the facilitative strategies and barriers is also included in an attachment for your purposes.

The items will be rated on a 5-point Likert scale (strongly agree, somewhat agree, not applicable/undecided, somewhat disagree, and strongly disagree) by teachers and administrators.

Let me know if there is anything else that I need to do to help you with this process.

Again, I greatly appreciate your time and effort. I want to thank you for your kind support throughout this process.

Sincerely,  
Byron Bishop

## Appendix C

### Focus Group Transcription Example

## Central Office Focus Group

### Introduction:

Moderator: Thank you very much for agreeing to participate in this focus group. My name is Byron Bishop, and I am a doctoral student at the campus of William and Mary working on a dissertation entitled “Analysis of data based decision making and the perceptions of the roles of teachers and administrators.” Each of you has been selected because you represent a group of teachers or administrators. The purpose of this focus group is to get a better sense of those who work in the schools and the data to improve school performance and academic achievement. There are much data that can be used by teachers and administrators to help us meet the needs of students. I wonder what are the barriers that may prevent you from using data or information to increase teacher performance and what are some of the things in your school or school division that help you to use data. Basically what are the obstacles and what are the things that are in place to facilitate you to use data. The data that I collect will remain confidential and anything that is in my research will not identify you by name or by school. Only you and the other focus groups and others that you have spoken to about your participation will know that you are taking part in this interview. I will use this data to better understand the perceptions about data based decisions.

### Questions:

Moderator: When you hear the term “data”, what comes to mind?

Central office personnel: Graphs...we were thinking about that on the way over and I actually wanted you to define data for us because data can mean numbers, but it can also mean qualitative data like observations and what you get from conversations and so on. And, you talk about data driven decision-making, I need to know whether you’re thinking about [standardized test] scores, PSAT scores, grade point average...whether you’re thinking strictly about numbers or whether you’re thinking about data which can be culled from observations or conversations.

CO: That’s an interesting question because his dissertation is a mixed design. This is the qualitative part, which some people may say that that’s going to be the soft data as opposed to the survey data, which is the hard data. I was assuming, and one should never do that, that this is hard data he was looking for, because that seems to be where his idea is and SOL’s are, but you’re right. Let’s make him tell us.

M: That’s up to your interpretation of data, and I’ve had different responses from lots of different people about what data is...and it runs the gamut. So as we get to these questions, some of that will be sorted out.

CO: The standard definition in science would be that data is associated with numbers and observation would be sketches or descriptors that you use...and that data is inherently related to numbers. But that’s for sciences. As a classroom teacher, you could say that

you are collecting data when you watch your student's faces, and you are seeing comprehension and you are not seeing comprehension. And that is just as valuable as a score on a test in terms of determining whether or not you can move forward with the instruction.

M: I understand what you are saying, and I would like to add to the discussion but I can't because I am moderator.

CO: And for counselors, their observational data is all they have to go on in personal social interactions

CO: But I'm willing to restrict the conversation today to hard data.

M: There's no need to, because we can go to the next question and ask, "From your examples of data, what is the most important data?" ...To improve teaching or student achievement...not only student achievement but student behavior, student life skills...

CO: Maybe we should break it out and address the student achievement issue first and go into the others later. It's a little bit like trying to get your arms around the elephant to do it all. When I think of data to improve instruction, I think of a collection of multiple data points on assessments, both formative and summative. Formative assessments, so that you know what you need to re-teach. Summative assessments to find out if you were successful in your teaching it. So that's basically how I see that instruction.

CO: I don't think I have anything to add to that. Except that the word assessment does not necessarily mean multiple-choice test as it does with the Standards of Learning. I think, for example, assessment in science should be lab based. Can the student actually do a lab experiment and draw reasonable conclusions from what they have done. And in mathematics, it might be can they solve a real problem and describe how they solved the problem and explain the solution and come up with other ways to solve the same problem.

CO: A career in technical education is very much the same way in that it is competency based, and there has to be a demonstration of that competency. And when you break tasks down into component parts, you will see that little pieces of components are missing, so the kid misses the whole thing. But all you have to do is observe him to see which piece of the whole competency he is missing to find out why he is missing the whole thing.

M: What types of data does the school division use to improve student achievement?

CO: We are looking at a Strategic Plan right now. We are looking at SOL's. The obvious answer would be SOL's, but I think that the answer to that question has to be; whatever data is stated as goals one and two of the Strategic Plan. Because that is the fundamental driving document behind everything that we do now. So if data is in there, for instance, one that "name" has had to contend with is something like "50% of the

students will have completed geometry by the end of ninth grade.” And that may not be right. It’s hard-core data and may be difficult to come up with, but it tells us whether or not kids are on a path to successfully complete the advanced studies diploma by the time they graduate. That’s real data, and that’s in the Strategic Plan, and that’s what we work with. SOL data is only one piece of it.

CO: She’s right about the driving documents. We wonder if the people at the school level understand the driving documents. We doubt that teachers do, but we hope that principals and assistant principals do. What we are doing is not unplanned, but it is very carefully planned with community members and school people together to create essentially a data based mission.

CO: Yes. I think it is based specifically on data. I wasn’t involved in the development of the Strategic Plan, but I certainly was involved with development of the action plans, and I was involved with the development of the indicators of success. And we were trying to use data, which we were already collecting, or could collect readily, which would get at the five different goals...not necessarily each of the strategies within the five goals, but each of the five goals. And we were specifically looking for data...hard data, quantifiable data.

M: To measure...

CO: ...the success of those goals.

M: And these objectives are helping you achieve these goals?

CO: There are strategies within the goals. There are five goals and each goal has a series of strategies...and the measures of success...the indicators of success... are tied to the goals not to specific strategies. So you might not find a one-to-one connection between an indicator of success and a specific strategy.

CO: And in order to make it more likely that we will actually meet the goals in the next five years, we have also built in action plans with responsibilities and year-by-year time lines. However, we were told repeatedly that a Strategic Plan is a living document and will be adjusted as “need-be” on an annual basis.

CO: We’ve run into some of those glitches already.

CO: But in terms of data driven documents, that’s what we are living with.

M: And that is the basic thing that drives Central Office in improving instruction?

CO: Yes.

CO: Yes.



M: And that is the basic document to build principles?

CO: That's kind of the umbrella that touches all of our lives. And then individually we have data gathering mechanisms of our own.

M: Within your department?

CO: Yeah. I'm working another driving document and that's the Guidance Improvement Plan which is data driven, so I'm having to gather information on parent satisfaction with secondary school councilors. I'm looking at numbers of parents who come in to see the councilors to register their students. We're looking at the logs of councilors...how do they spend their time, so I'm doing an awfully lot of graphs right now at the end of the year about all these things. And there's CTE where data is gathered intensively on children who take CTE and analyzed at Virginia Tech and reports sent back to the state department on kind of an annual report card on each high school. And Williamsburg/James City County this year, I'm pleased to report, is one of only six counties in the entire state that does not have to write an improvement plan based on that data.

CO: Oh, good for you.

CO: And that is all hard data...

M: That's amazing. So do the teachers who are improving instruction have access to that data...as much as you want? More? Less?

CO: Last year I past it out to our teachers, and they didn't get it. So this year I did a CTE Newsletter and explained the categories and where we were.

CO: I think she is in a unique position because she handles those two specific programs.

CO: Yes. Lots of data.

CO: In Science we looked at SOL scores more that a year ago when we were weaving the building level Science leaders and me. When we were beginning to revise the science curriculum, and we were looking to see if there were any division wide issues. When you get the SOL data back, it can be broken down into five categories...five sort of general science concepts...and we looked building by building, grade level by grade level to see if there were any huge holes that were being indicated by the SOL scores that we needed to address in our curriculum revisions. And there weren't. There were individual problems in individual buildings, but there was nothing across the board that we needed to use in our revision of our curriculum. And in math, I can speak somewhat for "name" in math because I was the math coordinator. We use hard data at the end of fifth grade to make initial math placements in sixth grade math, and it's a nightmare. And one of the things that has come out of that over the last couple of years, "name" is going to follow up with (and I think it's going to be her dissertation) is the longitudinal study on the achievement

of students as they are accelerated in Middle School math and also their attitudes about mathematics. Because there is some concern about whether or not students who were accelerated and ended up taking algebra in eighth grade or even geometry in eighth grade used their instruction in Middle School sufficient that they have a very deep understanding of some fundamental concepts so they continue to succeed at the high school level. And you could argue that the kids who take geometry in eighth grade who are the fastest of our students, are so mathematically adept that they end up doing fine. But the high school teachers have expressed some concern that the high school students who took algebra in eighth grade are good at playing the achievement game...are good at taking assessments, but they are concerned about deep understanding. And that, perhaps, these students have been accelerated too fast. And so, when I was math coordinator, I started collecting data for a longitudinal study to find out how well these kids actually progressed through high school and even beyond into college. We're hoping to send postcards to find out if they are taking calculus in college, are they liking calculus in college, are they being successful at calculus in college, so that we can make curricular decisions in Middle School. For instance, should we continue to have geometry offered in the Middle School? And my gut reaction is "no", and [name's] gut reaction is "no", but we need to have the data in this community to be able to support that decision as to whether or not we remove geometry from Middle School. And also, can we develop predictors for fifth grade math students to better place them in Middle School, or even what I wanted to do if I were to continue as math coordinator, would be to create predictors, and have the parents make the decision as to math for their rising sixth grader. So that it's not the authority of the school coming down and placing, and perhaps excluding, some students whose parents think their student should be placed in higher-level math classes. But in order for parents to make educated decisions about that, they need to have some sort of information that they can use along with their experience with their child's success in elementary math...the fifth grade math placement test, the Orleans/Hannah test which is a test of Algebra readiness, and, of course, the SOL test ...and take all of that information and make a rational choice as to where their child should be. I don't know if "name" is going to go that far, but the idea is to use the data to take some of the responsibility for those decisions out of the schools hands and invite the parents to participate in those decisions. Because at this point, it's the schools that make the placements and then we hear from the parents if they think the placement should be adjusted.

CO: What is interesting about what you are talking about is that it doesn't address the fact that teacher's teaching styles may be different and probably are. And occasionally we do make jokes about math teachers, but the parent assumes that all math teaching will be the same, and that those deeper understandings, the conceptual understandings, will be addressed.

CO: Yes, and I don't think they are in all classes.

CO: And that's the pity, because you would have to do a long-term study in order to disaggregate, and by the time you figure out which teachers are not doing the subject justice, those kids have graduated.

M: So how do you do that? How do you use data to improve instruction?

CO: That should be the goal. That should always be the goal.

M: Right.

CO: I'm not sure that the SOL data really helps you that much unless you can pick it apart question by question by question. And I know that some of the building leaders in the schools...the math leader...has access to that. If I have access to that, because "name" went out to a Middle School and taught the leaders how to use the SOL data beyond the disaggregator and look at the data question by question. And she thought that that was incredibly useful. I have access to data disaggregator, and I can look at general trends, and I can look at sub-populations, and I can look at general categories, but I don't have access to question-by-question data. I presume I could get access, but I also don't have time to do that kind of detail. And I could see why an individual classroom teacher would find that very useful but...

M: ...Do they have time?

CO: I don't know if they have time or not. I certainly don't have time. Time is a huge barrier.

M: Time is a huge barrier. Okay. And access to data is a huge barrier.

CO: It's a barrier that as a Central Office person I could overcome...

M: but with time...

CO: With time. That's right. And a teacher could overcome that access approval...whether or not they are approved to get information about their students...I'm sure that wouldn't be an issue. They couldn't get information about the whole school division because of confidentiality issues. If a teacher requested, I am assuming that they could get information about their particular class and individuals in the class. Whether or not they have time or not is another issue...time is huge.

M: So data is used to focus the organizations of the school division. I can hear that because you have the Strategic Plan. Is there any other ways that uses data to focus on how we all work together?

CO: Yeah. Data is used...this is a more general sense...but data is used to determine whether or not there is going to be another teacher in an individual school in order to keep class size down, for instance. And I know that because we were doing science textbook adoption, I knew where class sizes were at all the schools at all the levels. I knew how many kindergarten kids and how many kids were going to be in each grade. It

wasn't public knowledge, but because I needed to be able to order books, I got that. So, yeah, I used it to order books for science and it is used for staffing allocations.

CO: And it used to be that real estate people would advertise their areas as "a well-stocked library, a great football team", but now they don't want to know that. I get calls in June and July for the number of graduates, the number of dropouts...from real estate people who are doing up their brochures. In July they want our SAT averages.

M: So, do others inside the school or outside the school use information about school progress against you? Do they use data against the schools? Particular schools or particular districts?

CO: If you are saying against...used to criticize schools. Certainly.

CO: That's what "The Last Word" is all about.

CO: So, that's inherent in the NCLB law that you are going to suffer. You can't get around that.

M: You can't get around that?

CO: You can't get around NCLB, and you can't get around a local newspaper, which allows people to make comments without attribution.

CO: That's right.

CO: You can. You cannot subscribe to the newspaper, which we don't on principle.

CO: And, we don't.

CO: So, there's a piece of data...two lost subscriptions.

CO: It's yellow journalism. It's incredible bias.

CO: Fortunately, we have a very, very good person, "name", in the office of getting information to the public.

M: Which is data.

CO: Which is data. He does an outstanding job. That helps counteract some of the criticism based on data that circulates.

CO: And fortunately, our SOL data is really decent. All of our schools are accredited. But if you noticed yesterday's paper, there was a Harvard study about small children of Yale, and the Virginia data was disputed saying that there weren't as many children thrown out of preschools as the Yale study indicated, and so it makes one wonder about

the validity of data. How is it measured? And then you look at Warrick High School being named in the top 100 or top 500 schools, and no W/JCC was. But if you look at how it was determined, just based on AP and IB courses (the IB magnet for the division), so of course, it's going to come out that way when you mix AP and IB in a school that size.

M: So, when they look at data, they are not looking at all the data.

CO: They are not looking at it critically. They are just letting it come over them as a wave...data.

CO: I wanted to give you another example as how data is used at the Central Office.

M: Okay.

CO: The SOL data for a couple of schools wasn't high enough in reading, and, because of that, the state said that we must use 10% of our allocation of Title 1 for staff development in reading for a two year cycle. So therefore, because of the data, we've had to modify our staff development plans in order to satisfy the state requirements. And it is actually hard to spend \$90,000 on staff development, but we must. So that was completely data driven and state mandated.

CO: And another example is this administration, Bush 2, made the case that career and technical education courses do not contribute to students going to college, therefore, we should slash the Perkins budget. Now all the data is right. It doesn't. More kids who take CTE go to work or they go to two-year schools and go to work.

CO: And what would be wrong with that?

CO: I would think that that would be an economic indicator that you might want to keep funding those Perkins dollars, but it's all about going to college, isn't it.

M: So, that's their objective.

CO: Yeah. It's their objective, so they spun the numbers to come out the way they wanted it because they wanted the Perkins money to go to support NCOB at the high schools.

M: Is information from researchers and universities useful to you?

CO: Yes. Again this goes back to math, but there is an excellent book called "Adding it Up" which is done by the National Research Council, and it is a compendium of research on how students learn mathematics, and it is written not in research language, but written for ordinarily intelligent people to read and to modify their instruction. It tells which research demonstrates best practices in mathematics. It is an excellent book, and there are equivalents in science. It helped me as I was stepping into a role in which I had little

expertise, and that is math. I can make translations between science and math because there are distinct parallels. But it gave me a very solid background for some staff development offered here and in Costa Rica, as well, on what best practices are to have kids develop a deep understanding in mathematics. So, yeah, I have used serious university based research in trying to improve instruction in mathematics and in science.

M: In the schools?

CO: In the schools. Absolutely. It helps not to have to go to the original research journal articles. It helps to have the National Research Council summarize it. It is like ERC. We have used ERC in the Middle School program report. We based a lot of our literature search on ERC documents, which are research based.

CO: Data driven. And recently I attended a forum for the College Board, and we all know that a minority achievement gap exists and most of that is descriptive, but what was interesting about this college board session was that we had practitioners from high schools across the south that are making strides in closing that gap, and were sharing their statistics as well as their methodologies. That was powerful.

M: Do the teachers have an idea about whether or not their students are being successful?

CO: Yes. Yeah. It is interesting, when I first started working for the division within a week of being hired, we had opening day, and I met with the science teachers (high school and middle school teachers), and I asked them about the SOL tests, and they talked about there being so much pressure and teachers were being fired, which wasn't true. Then I asked them how their students did, and they said they did fine. There was such a contrast between the culture and their own experience. They felt confident about their kid's ability to do well on the SOL tests, but that wasn't what they were feeling in the schools...and that's science specifically. On the other hand, the AP test, because of the nature of the schedule of the high school (four by four block), teachers do not feel confident of their kid's ability to succeed on the AP test, because the test comes in May, and if the course is a spring course, they don't have the instructional time they need in order to teach materiel to the kids sufficiently for them to do well on the AP test.

CO: I think SOL tests are fine.

CO: If it's a fall course and the test is given in May. Then they've got a gap.

CO: So, they're doomed either way.

CO: So AP science teachers are not confident at all. In fact I'm meeting with two next week to find out if we can do anything about it. But in terms of SOL tests, the teachers I've talked to say that, "My kids do fine."

M: What are the values held in the division regarding how students achieve? What do you believe about how students achieve and whether they achieve?

CO: I never know how to answer questions like that.

CO: Are you looking for a sort of global statement?

CO: It's clear that everyone in the schools wants kids to learn...to achieve. I think there is a recognition that all kids learn at the same rate, and we need to support kids in learning at whatever rate they can learn.

CO: Well, I see a strong partnership between the schools and the parents for the most part. At least, the school is making a lot of effort to the parents in the investment in Edline and the mandate to use it to communicate with parents is certainly an indicator of the value of achieving. The State Board of Education regulations recognize that the parents are the first and best teachers. I'll have to look that up again. It recognizes that parents have a big part to play, and I think that in this community more than any other I've worked in, I see a strong effort...

M: To bring...into the fold the many different parts of the community to...

CO: ...let parents know that they are part of the equation, to involve them in the process, and to have them give back to the schools by coming in to collaborate. We see that as part of the Strategic Plan.

M: I have another question involving Victoria Bernhart. She feels that most schools look at test scores only briefly and then put them away until the following year.

CO: No. In my conversations with principals, that is not the case. When I talk with principals, it is clear that their school improvement plans are built around data. It is clearly on the building principal's mind at all times...how kids are achieving. We've been talking about intellectual achievement, but they are also concerned about moral achievement. Are the kids behaving themselves? I think at the building base level, people are thinking about data all the time. I disagree with that.

M: Okay.

CO: I just want to respond to something you said because it sparked a memory of something that came out of the College Board experience. It was about how one really has to address the culture of the principals and teachers agreeing on behaviors that are acceptable...not only behaviors of the kids but behaviors of the adults in the building, and making it a true community. And only then can you begin to move forward with achievement issues.

L: So culture is important.

CO: Culture is very important.

CO: And would be a barrier if you don't have the right culture.

CO: But I think that the culture is imposed on the schools by "No Child Left Behind". I think a kind of panicky feeling that I talked about before...people being fired...that's pervasive, so I think...

M: That's a good thing?

CO: No. I don't think that it is a good thing that people are concerned about that, because it's not happening. It's not true. I think that people are panicking unnecessarily, but it does bring attention to the need for achievement, and that's a good thing.

M: Do all schools measure achievement?

CO: As a chemistry teacher, I never gave multiple-choice tests to evaluate whether my kids knew anything about chemistry. I gave lab-based tests. I gave short answer tests. I gave essay tests. And I knew whether my kids were achieving, and it was not on the basis of multiple-choice tests.

CO: Are you familiar with William Baracey?

M: No.

CO: He used to teach at William & Mary, and in 1996 when Virginia was just starting SOL's, he wrote an article in which he described Virginia's SOL's as "a mile wide and an inch deep." And I thought that captured it. It's cursory, and it's a minimal level of achievement.

CO: It's "how much information do the kids know, not how much knowledge they have." And I know that lots of teachers are concerned that it measures how well kids read not how well they know the discipline they are being tested on. And that's a real concern. For instance, in mathematics, there is a version of the math test that has descriptive language.

M: The "plain English" math test.

CO: I asked people at the state level a few years ago that if English is a barrier, why aren't we giving all students the "plain English" math test, and they really couldn't give me a straight answer. If we are testing math and not English, why not give everyone the Plain English test, so that we are evaluating math not English. So, maybe the SOL test evaluates the achievement in reading and not math.

M: But there is other data out there? Are the teachers using other data?



CO: Sure. They are using their classroom assessments all the time.

M: Okay. Do you feel that, as a division, teachers can take risks, and you can take risks to improve student achievement?

CO: It's all about intervention...and how risky is the intervention. Are we seeing barriers to risk taking? I don't see it.

CO: No, I think that there is tremendous support for innovation if the innovation can be justified and rationalized with research, which demonstrates that the innovation is likely to succeed. I've gotten absolute support for innovative programs that were fairly risky that I've been involved with. People are eager for creative ways for different kinds of kids to be able to achieve rather than just the kids who are good at learning by just reading from a textbook. People are welcoming innovation like that.

M: But that is data-driven, too.

CO: Yeah. Absolutely. It's data driven not necessarily with our students, but with each of these pilots we have to put in an assessment component to know whether or not it works. Another was "two part" chemistry. We did a pilot and found that in fact the kids did do better with "two part" chemistry. Another one is Algebra 1 quarter by quarter instead of semester by semester to evaluate whether kids are getting it after one quarter before moving them on to the second quarter. So, yeah. I think there is real support for taking risks provided that there is some evidence that that risk is worth taking. If you can justify it, it can happen.

CO: I think we have to credit those administration people at the top to allow school based people to take those risks and supporting them with as many resources as we can. But I am also so heartened with the Principals who take these risks and recognize that these children are not "cookie cutter" children, and that these children learn differently. You have to try multiple strategies.

M: Thinking back on our discussion, are there any other ways to use data to improve school instruction and student performance? Anything you want to add?

CO: If we were adequately staffed so there would be more time? For me as a science teacher, to look at the science data carefully and work with the teachers and work on developing staff development. It's a staffing issue, which is a money issue, which creates a time issue.

CO: I would agree with that. I have two areas, which are probably the most intensive recording, and most of my data is not used to improve student achievement. I wish I could say that it were. It's more descriptive data that tells people whether or not they should buy homes in Williamsburg. On the CTE side it is kinda telling us whether we are going to get in trouble and have our funds cut by the government. So, no, it's not about teacher improvement for me, but I'm glad it is for her.

CO: It could be for me if I had the time to do it. But my time now is supposed to be 50% on science and I probably only spend 40% of that 50% on science. The rest is on other administrative jobs that have to be done. It is the other duties assigned.

M: Is it because our division is a certain size? It's not big enough to get...or small enough...?

CO: You don't recognize that it's that big. "Name" is doing jobs that two different people should be doing, and there are other duties as assigned. And that's what keeps us from analyzing the data the way it should be analyzed. It's the other administrative duties. We're sort of "utility infielder bureaucrats" is what we are. Somebody's got to do these things. Somebody has to do the in state reports. Somebody's got to plan summer school. Is that not right?

CO: It's true. It's true. We're versatile though.

CO: We are versatile, but they hire us because of our skill set.

CO: And it's a good thing we're brilliant!

CO: Because someone has to do these other administrative things, we need a couple of just administrators, general administrators, at the Central Office to free the curriculum specialists up to just look at the curriculum things. And we're hoping the efficiency audit backs us up on that.

CO: And I think it's on the threshold on the size issue. We stand on the threshold of small division and moderate. And we are about to tip over into moderate size division very quickly. And adjustments will have to be made. You will see people from Central Office leaving in droves. We can't continue at the pace we are.

CO: It's crazy.

M: That came up several different ways. I just wanted to address that.

CO: The only classrooms that I have been in this year have been three first grade classrooms. And the only reason I visited was that they wanted me to come out and talk about soils and work with the students. And this spring I've been in math classes because of my other half-time job with William & Mary, supervising student teachers. And it is crazy for someone who's in charge of the science curriculum not to spend time in science classrooms, helping teachers be better...getting an overview of what the needs are. And I don't have time to collect that kind of information.

CO: And I don't get into CTE classes at all.

M: It's the time. Thank you for spending your time with me.

## Appendix D

### Application for Conducting Educational Research

## Application for Conducting Educational Research

November 19, 2004

### Rationale and objectives

The purpose of this study is to examine the perceptions of central office administrators, building principals, and teachers regarding the use of data to improve student achievement. A cross-sectional survey design using a questionnaire will be implemented to collect data from randomly selected central office administrators, principals, and teachers within the [school district]. A questionnaire has been constructed based upon the literature regarding the use of data to make informed decisions that impact student achievement. The perceptions of the central office administration, principals, and teachers regarding the use of data within the schools will be analyzed using ANOVA, and post hoc analysis with the Tukey HSD. The perceptions of the current use of data within the school and district including the barriers and opportunities to use data to increase student performance will be measured, as well as the perceived needs for data to be used to improve instruction and student achievement. Focus groups consisting of teachers and administrators will be interviewed to gain further in-depth knowledge about the perceptions of the different groups regarding the use of data in the schools.

### Sample

The sample for this study will include all administrators (central office and building level) from the [school district]. At the central office this will include superintendent; assistant superintendent of academic services; director of accountability, assessment, and grant writing; director of curriculum and staff development; gifted/fine

arts programs services, reading, English, language arts, Title 1 and foreign language coordinator; minority achievement supervisor; health and physical education coordinator; guidance/career and technical education supervisor; director of student services; supervisor of special education; lead teacher of special education; and science and math coordinator. All building level principals and assistant principals will be surveyed. An equal-size stratified random sample of teachers from the district's 2 high schools, 3 middle schools, and 7 elementary schools will be selected from a list of all teachers provided by [the school district]. 50 teachers from each level will be asked to participate.

### Educational Intervention

The first part of the study the researcher will use a cross-sectional survey design. The survey will be given to building level and central office administrators and teachers from elementary, middle, and high school. The questionnaire will be aligned with the research questions.

### *Research Questions*

1. What are the differences in perceptions between teachers and administrators (building and central office) regarding inhibiting factors, facilitative strategies, and needs for the effective use of data to improve student achievement?
2. What are the differences in perception between elementary, middle, and high school teachers regarding inhibiting factors, facilitative strategies, and needs for the effective use of data to improve student achievement?
3. What are the differences in perception between building-level and central office administrators inhibiting factors, facilitative strategies, and needs for the effective use of data to improve instruction?

The second part of the study is qualitative in nature and is designed to provide a more in-depth investigation of the perceptions of data use in the school setting by specific groups. A multiple-category design will be used to conduct focus groups in order to make comparisons with one category to another. Through a focus group interview process based upon the results of the survey, the researcher will further investigate the perceived inhibiting factors, facilitative strategies, and needs of respondents. The purpose of the qualitative part of the study will be to explain in greater depth: (1) the barriers and facilitative strategies perceived by teachers and administrators regarding the use of data to improve student achievement, (2) the perceptions teachers have regarding their role and the role of administrators to use data to improve instruction, and (3) the perceptions of administrators have on their role and the role of teachers to use data to improve instruction.

#### Data Collection Procedures

The questionnaire is less than 60 questions and will be administered to all administrators and to a random stratified sample of teachers. The questionnaire should take no longer than 20 minutes to complete. The focus group interview will include 5 groups of 6-8 members. One group will consist of central office administrators, another group will consist of principals and assistant principals, and the other three groups will consist of one group of teachers from each level (elementary, middle and high school). The groups will be chosen based upon the results of the survey to allow for heterogeneity of the members. The focus group interview will be scheduled for one hour after the school day.

### Potential Benefits to the District

How data are used and perceived by the members of a school organization impacts whether data are used effectively to make decisions (Holcomb, 1999). The engagement of people within the process of school improvement is critical to the success of the school (Holcomb). According to Tom Collins in the book *Good to Great* (2001), an organization goes from good to great when there is “an honest and diligent effort to determine the truth of your situation” (p.88). In order for data to be used purposefully by the organization a shared understanding of the data is necessary (Love, 2003). The perceptions of teachers and administrators regarding the use of data may impact the effectiveness of the decision making process. In order for information regarding student achievement to be effectively utilized, the perceived barriers to using data to improve student achievement need to be addressed. The facilitative strategies that exist also need to be extended. In order to create a culture where data are used to engage disciplined action, the perceptions of the organizational members regarding data must be taken into consideration. The purpose of this study is to examine the perceptions of school staff members regarding the use of data to make educational decisions.

### Plan or Obtaining Informed Consent

A letter will be provided to the subjects prior to their participation in the study. All ethical safeguards for the research will be followed. The research project will be evaluated through the Protection of Human Subjects Committee at The College of William and Mary.

## Appendix E

### Cover Letter for Questionnaire



Byron Bishop

February 24, 2005

Dear Fellow Educator;

I am a graduate student working toward a Ph.D. at The College of William & Mary. You have been randomly selected to participate in my study regarding the perceptions of teachers and administrators about data and student achievement. Enclosed you will find an informed consent letter and a questionnaire. I hope that you will help me by returning the letter and the completed questionnaire. Your honest and thoughtful responses are important to the completion of my dissertation. I truly cannot do it without you.

The goal of my study is to assess the perceptions of school staff members regarding their experiences with using data. The questionnaire will also provide a useful opportunity for you to reflect upon the use of data in your school. Please take the time out of your busy schedule to respond to the questionnaire. While the results of this study will eventually be published and available in The College of William & Mary Library in Williamsburg, VA, complete anonymity of individual responses is guaranteed.

If you have any questions or need assistance, please call me at (work) 555-1234; (home) 555-1234, or email me at [abc@123.com](mailto:abc@123.com).

Please take the time to complete the questionnaire and return it, along with the Informed Consent Letter, in the enclosed self-addressed, stamped envelope. Thank you for your help!

Sincerely,

R. Byron Bishop

Appendix F  
Informed Consent Letter

## Informed Consent Letter

The College of William &amp; Mary

*Analysis of Data-Based Decision Making: The Perceptions and Roles of Teachers and Administrators*

The purpose of the study entitled, *Analysis of Data-Based Decision Making: The Perceptions and Roles of Teachers and Administrators*, conducted by R. Byron Bishop, is to understand the perceptions of educators regarding barriers and opportunities when using data to make decisions that impact student achievement. I understand that I will be asked to complete a questionnaire. I further understand that my responses will be confidential and my name will not be associated with any results of this study. I know that I may refuse to answer any question asked and that I may discontinue participation at any time. I also know that I may be asked to participate in a focus group. I am aware that I may report dissatisfactions with any aspect of this experiment to the Chair of the Protection of Human Subjects Committee, (Acting Chair is Dr. Gary Kreps 757-221-1283 or [gakrep@wm.edu](mailto:gakrep@wm.edu)). I am aware that I must be at least 18 years of age to participate. My signature below signifies my voluntary participation in this project, and that I have received a copy of this consent form.

I hope you will take a few minutes to complete this questionnaire and return it, along with this letter, in the enclosed self-addressed, stamped envelope.

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Date

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Signature

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Print Name

THIS PROJECT WAS FOUND TO COMPLY WITH THE APPROPRIATE ETHICAL STANDARDS AND WAS EXEMPTED FROM THE NEED FOR FORMAL REVIEW BY THE COLLEGE OF WILLIAM AND MARY PROTECTION OF HUMAN SUBJECTS COMMITTEE (PHONE: 757-221-3901) ON NOVEMBER 17, 2004 AND EXPIRES ON NOVEMBER 16, 2005.

Appendix G  
Teacher Questionnaire

### School Use of Data – Teacher Questionnaire

The purpose of this survey is to explore how you use data to improve instruction and student achievement in your school. The questions will cover general background information as well as your perceptions regarding the use of data in your school. Please provide a response for each item that best reflects your perceptions about the item. Also, please respond to questions at the end of the questionnaire. Your answers to the questionnaire will remain anonymous.

#### Background information:

1. At what building level do you work?
  - ☐ Elementary
  - ☐ Middle
  - ☐ High
  
2. How many years have you worked for this school district?
  - ☐ Less than 1
  - ☐ 1-5
  - ☐ 6-10
  - ☐ 11 or more
  
3. How many years have you been teaching?
  - ☐ Less than 1
  - ☐ 1-5
  - ☐ 6-10
  - ☐ 11 or more

Listed below are some factors that may encourage or prevent the use of data/information. Please circle the number that most closely represents your experience regarding the use of data in your school.

		Strongly Disagree	Disagree	Not Applicable/Undecided	Agree	Strongly Agree
1	We have a common vision that is understood by all.	1	2	3	4	5
2	We have a common understanding of what we want to achieve.	1	2	3	4	5

		Strongly Disagree	Disagree	Not Applicable/Undecided	Agree	Strongly Agree
3	I am not sure how best to use data to improve my school.	1	2	3	4	5
4	I am not offered enough time to analyze data about student achievement.	1	2	3	4	5
5	Our school has specific goals to improve achievement.	1	2	3	4	5
6	The data my school uses have an impact on the goals of my school.	1	2	3	4	5
7	All children are expected to learn in my school.	1	2	3	4	5
8	We work together to use data to improve instruction.	1	2	3	4	5
9	Student achievement data can be used against me.	1	2	3	4	5
10	Teachers continuously develop new instructional strategies.	1	2	3	4	5
11	The community uses data to cast blame on the schools.	1	2	3	4	5
12	The staff is involved in the decision-making process in my school.	1	2	3	4	5
13	Teachers share experiences of professional growth with each other.	1	2	3	4	5
14	There is little time for me to use data about student achievement to improve my teaching.	1	2	3	4	5
15	I have access to student achievement data.	1	2	3	4	5
16	I am trained to effectively analyze and use data.	1	2	3	4	5
17	Teachers are encouraged to experiment with new strategies in classrooms.	1	2	3	4	5
18	Teachers share new instructional practices with each other.	1	2	3	4	5
19	The staff uses data to assess student progress.	1	2	3	4	5
20	I know how to use data to improve teaching.	1	2	3	4	5
21	We have so much data that I do not know how best to use it.	1	2	3	4	5
22	Data are used to develop my school's improvement plan.	1	2	3	4	5
23	Assessment of my school's progress is ongoing.	1	2	3	4	5
24	There are incentives for staff to use data in decision-making.	1	2	3	4	5
25	The school community works together to create a plan of action.	1	2	3	4	5
26	Educational research is available to me so that I can use it to improve instruction.	1	2	3	4	5
27	Data are often misinterpreted to support political agendas.	1	2	3	4	5

		Strongly Disagree	Disagree	Not Applicable/Undecided	Agree	Strongly Agree
28	Teachers and administrators work together to improve teaching and learning.	1	2	3	4	5
29	SOL tests measure what is taught in my school.	1	2	3	4	5
30	There are few expectations for me to use data.	1	2	3	4	5
31	There is no emphasis from school leadership for me to use data.	1	2	3	4	5
32	Our school district has a defined purpose of what we want to achieve.	1	2	3	4	5
33	I do not have access to technology to analyze data about student progress.	1	2	3	4	5
34	I believe I am capable of helping students achieve mastery in the curriculum I teach.	1	2	3	4	5
35	Data are used to measure student progress.	1	2	3	4	5
36	Staff development opportunities focusing on student achievement data are provided.	1	2	3	4	5
37	If teachers share their failures they may be criticized.	1	2	3	4	5
38	My school approaches problems by first defining the problem.	1	2	3	4	5
39	Time is provided for teachers to collaborate.	1	2	3	4	5
40	My school involves me in identifying our strengths and weaknesses.	1	2	3	4	5
41	There are no courses or professional development available to me to use data to improve my teaching.	1	2	3	4	5
42	Information is shared often to help guide our efforts to improve.	1	2	3	4	5
43	We are encouraged to take risks.	1	2	3	4	5
44	We are encouraged to use data.	1	2	3	4	5
45	By the time I get information from educational researchers it is outdated.	1	2	3	4	5
46	I am trusted with data to assess student progress.	1	2	3	4	5
47	Training offered by colleges and universities is applicable to real-world teaching and instruction.	1	2	3	4	5
48	I am given student achievement data that will help me to improve teaching.	1	2	3	4	5

		Strongly Disagree	Disagree	Not Applicable/Undecided	Agree	Strongly Agree
49	All groups within our school district work together to offer solutions and solve problems to improve student achievement.	1	2	3	4	5
50	Data are used for someone else's purposes rather than to help teachers.	1	2	3	4	5
51	My school has a specific plan to improve student achievement.	1	2	3	4	5
52	Data from SOL tests do not help me to assess student achievement.	1	2	3	4	5
53	Data from SOL tests cannot help improve my school.	1	2	3	4	5
54	Our school has a vision to improve student achievement.	1	2	3	4	5
55	Some data that could help children learn are disregarded.	1	2	3	4	5
56	We are committed in all we do so that all children will learn.	1	2	3	4	5
57	We are encouraged to work together to investigate how to teach better.	1	2	3	4	5

Please describe any conditions that exist in your school that allow you to use data better to improve student achievement and teacher performance.

Please describe any conditions that you may have encountered that preclude you from using data to improve student achievement.

List any other factors that you feel are necessary for a school to use data more effectively.



## Appendix H

### Building Level Administrator Questionnaire

### School Use of Data – Building Level Administrator Questionnaire

The purpose of this survey is to explore how you use data to improve instruction and student achievement in your school. The questions will cover general background information as well as your perceptions regarding the use of data in your school. Please provide a response for each item that best reflects your perceptions about the item. Also, please respond to questions at the end of the questionnaire. Your answers to the questionnaire will remain anonymous.

#### Background information:

1. At what building level do you work?
  - a. Elementary
  - b. Middle
  - c. High
2. What is your position?
  - a. Principal
  - b. Assistant Principal
3. How many years have you worked for this school district?
  - a. Less than 1
  - b. 1-5
  - c. 6-10
  - d. 11 or more
4. How many years have you been administering for this school district?
  - a. Less than 1
  - b. 1-5
  - c. 6-10
  - d. 11 or more
5. How many years have you been in your current position?
  - a. Less than 1
  - b. 1-5
  - c. 6-10
  - d. 11 or more

Listed below are some factors that may encourage or prevent the use of data/information. Please circle the number that most closely represents your experience regarding the use of data in your school.

		Strongly Disagree	Disagree	Not Applicable/Undecided	Agree	Strongly Agree
1	We have a common vision that is understood by all.	1	2	3	4	5
2	We have a common understanding of what we want to achieve.	1	2	3	4	5
3	I am not sure how best to use data to improve my school.	1	2	3	4	5
4	I am not offered enough time to analyze data about student achievement.	1	2	3	4	5
5	Our school has specific goals to improve achievement.	1	2	3	4	5
6	The data my school uses have an impact on the goals of my school.	1	2	3	4	5
7	All children are expected to learn in my school.	1	2	3	4	5
8	We work together to use data to improve instruction.	1	2	3	4	5
9	Student achievement data can be used against me.	1	2	3	4	5
10	Teachers continuously develop new instructional strategies.	1	2	3	4	5
11	The community uses data to cast blame on the schools.	1	2	3	4	5
12	The staff is involved in the decision-making process in my school.	1	2	3	4	5
13	Teachers share experiences of professional growth with each other.	1	2	3	4	5
14	There is little time for me to use data about student achievement to improve teachers' performance.	1	2	3	4	5
15	I have access to student achievement data.	1	2	3	4	5
16	I am trained to effectively analyze and use data.	1	2	3	4	5
17	Teachers are encouraged to experiment with new strategies in classrooms.	1	2	3	4	5
18	Teachers share new instructional practices with each other.	1	2	3	4	5
19	The staff uses data to assess student progress.	1	2	3	4	5
20	I know how to use data to improve instruction.	1	2	3	4	5
21	We have so much data that I do not know how best to use it.	1	2	3	4	5
22	Data are used to develop my school's improvement plan.	1	2	3	4	5

23	Assessment of my school's progress is ongoing.	1	2	3	4	5
		Strongly Disagree	Disagree	Not Applicable/Undecided	Agree	Strongly Agree
24	There are incentives for staff to use data in decision-making.	1	2	3	4	5
25	The school community works together to create a plan of action.	1	2	3	4	5
26	Educational research is available to me so that I can use it to improve instruction.	1	2	3	4	5
27	Data are often misinterpreted to support political agendas.	1	2	3	4	5
28	Teachers and administrators work together to improve teaching and learning.	1	2	3	4	5
29	SOL tests measure what is taught in my school.	1	2	3	4	5
30	There are few expectations for me to use data.	1	2	3	4	5
31	There is no emphasis from district leadership for me to use data.	1	2	3	4	5
32	Our school district has a defined purpose of what we want to achieve.	1	2	3	4	5
33	I do not have access to technology to analyze data about student progress.	1	2	3	4	5
34	I believe I am capable of helping students achieve mastery by helping teachers teach better.	1	2	3	4	5
35	Data are used to measure student progress.	1	2	3	4	5
36	Staff development opportunities focusing on student achievement data are provided.	1	2	3	4	5
37	If teachers share their failures they may be criticized.	1	2	3	4	5
38	My school approaches problems by first defining the problem.	1	2	3	4	5
39	Time is provided for teachers to collaborate.	1	2	3	4	5
40	Teachers are involved in identifying the school's strengths and weaknesses.	1	2	3	4	5
41	There are no courses or professional development available to me to use data to improve teacher performance.	1	2	3	4	5
42	Information is shared often to help guide our efforts to improve.	1	2	3	4	5
43	We are encouraged to take risks.	1	2	3	4	5
44	We are encouraged to use data.	1	2	3	4	5
45	By the time I get information from educational researchers it is outdated.	1	2	3	4	5

46	I am trusted with data to assess student progress.	1	2	3	4	5
		Strongly Disagree	Disagree	Not Applicable/Undecided	Agree	Strongly Agree
47	Training offered by colleges and universities on the use of data is applicable to real-world teaching and instruction.	1	2	3	4	5
48	I am given student achievement data that will help me to improve teaching.	1	2	3	4	5
49	All groups within our school district work together to offer solutions and solve problems to improve student achievement.	1	2	3	4	5
50	Data are used for someone else's purposes rather than to help teachers.	1	2	3	4	5
51	My school has a specific plan to improve student achievement.	1	2	3	4	5
52	Data from SOL tests do not help me to assess student achievement.	1	2	3	4	5
53	Data from SOL tests cannot help improve my school.	1	2	3	4	5
54	Our school has a vision to improve student achievement.	1	2	3	4	5
55	Some data that could help children learn are disregarded.	1	2	3	4	5
56	We are committed in all we do so that all children will learn.	1	2	3	4	5
57	We are encouraged to work together to investigate how to teach better.	1	2	3	4	5

Please describe any conditions that exist in your school that allow you to use data better to improve student achievement and teacher performance.

Please describe any conditions that you may have encountered that preclude you from using data to improve student achievement.

List any other factors that you feel are necessary for a school to use data more effectively.

## Appendix I

### Central Office Administrator Questionnaire

### School Use of Data – Central Office Administrator Questionnaire

The purpose of this survey is to explore how you use data to improve instruction and student achievement in your school. The questions will cover general background information as well as your perceptions regarding the use of data in your school. Please provide a response for each item that best reflects your perceptions about the item. Also, please respond to questions at the end of the questionnaire. Your answers to the questionnaire will remain anonymous.

#### Background information:

1. How many years have you worked for this school district?
  - a. Less than 1
  - b. 1-5
  - c. 6-10
  - d. 11 or more
  
2. How many years have you been administering for the school district?
  - a. Less than 1
  - b. 1-5
  - c. 6-10
  - d. 11 or more
  
3. How many years have you worked in your current position?
  - a. Less than 1
  - b. 1-5
  - c. 6-10
  - d. 11 or more

Listed below are some factors that may encourage or prevent the use of data/information. Please circle the number that most closely represents your experience regarding the use of data.

		Strongly Disagree	Disagree	Not Applicable/Undecided	Agree	Strongly Agree
1	We have a common vision that is understood by all.	1	2	3	4	5
2	We have a common understanding of what we want to achieve.	1	2	3	4	5

3	I am not sure how best to use data to improve our schools.	1	2	3	4	5
		Strongly Disagree	Disagree	Not Applicable/Undecided	Agree	Strongly Agree
4	I am not offered enough time to analyze data about student achievement.	1	2	3	4	5
5	The district has specific goals to improve achievement.	1	2	3	4	5
6	The data the district uses have an impact on the goals of our schools.	1	2	3	4	5
7	All children are expected to learn in our schools.	1	2	3	4	5
8	We work together to use data to improve instruction.	1	2	3	4	5
9	Student achievement data can be used against me.	1	2	3	4	5
10	Teachers continuously develop new instructional strategies.	1	2	3	4	5
11	The community uses data to cast blame on the schools.	1	2	3	4	5
12	The staff is involved in the decision-making process in our schools.	1	2	3	4	5
13	Teachers share experiences of professional growth with each other.	1	2	3	4	5
14	There is little time for me to use data about student achievement to improve teachers' performance.	1	2	3	4	5
15	I have access to student achievement data.	1	2	3	4	5
16	I am trained to effectively analyze and use data.	1	2	3	4	5
17	Teachers are encouraged to experiment with new strategies in classrooms.	1	2	3	4	5
18	Teachers share new instructional practices with each other.	1	2	3	4	5
19	The staff uses data to assess student progress.	1	2	3	4	5
20	I know how to use data to improve instruction.	1	2	3	4	5
21	We have so much data that I do not know how best to use it.	1	2	3	4	5
22	Data are used to develop each school's improvement plan.	1	2	3	4	5
23	Assessment of each school's progress is ongoing.	1	2	3	4	5
24	There are incentives for staff to use data in decision-making.	1	2	3	4	5
25	The school community works together to create a plan of action.	1	2	3	4	5
26	Educational research is available to me so that I can use it to improve instruction.	1	2	3	4	5
27	Data are often misinterpreted to support political agendas.	1	2	3	4	5
28	Teachers and administrators work together to improve teaching and learning.	1	2	3	4	5



		Strongly Disagree	Disagree	Not Applicable/Undecided	Agree	Strongly Agree
29	SOL tests measure what is taught in our schools.	1	2	3	4	5
30	There are few expectations for me to use data.	1	2	3	4	5
31	There is no emphasis from district leadership to use data.	1	2	3	4	5
32	Our school district has a defined purpose of what we want to achieve.	1	2	3	4	5
33	I do not have access to technology to analyze data about student progress.	1	2	3	4	5
34	I believe I am capable of helping students achieve mastery by helping teachers teach better.	1	2	3	4	5
35	Data are used to measure student progress.	1	2	3	4	5
36	Staff development opportunities focusing on student achievement data are provided.	1	2	3	4	5
37	If teachers share their failures they may be criticized.	1	2	3	4	5
38	Our district approaches problems by first defining the problem.	1	2	3	4	5
39	Time is provided for teachers to collaborate.	1	2	3	4	5
40	Teachers are involved in identifying the school district's strengths and weaknesses.	1	2	3	4	5
41	There are no courses or professional development available to me to use data to improve teacher performance.	1	2	3	4	5
42	Information is shared often to help guide our efforts to improve.	1	2	3	4	5
43	We are encouraged to take risks.	1	2	3	4	5
44	We are encouraged to use data.	1	2	3	4	5
45	By the time I get information from educational researchers it is outdated.	1	2	3	4	5
46	I am trusted with data to assess student progress.	1	2	3	4	5
47	Training offered by colleges and universities on the use of data is applicable to real-world teaching and instruction.	1	2	3	4	5
48	I am given student achievement data that will help me to improve teaching.	1	2	3	4	5
49	All groups within our school district work together to offer solutions and solve problems to improve student achievement.	1	2	3	4	5

		Strongly Disagree	Disagree	Not Applicable/Undecided	Agree	Strongly Agree
50	Data are used for someone else's purposes rather than to help teachers.	1	2	3	4	5
51	The school district has a specific plan to improve student achievement.	1	2	3	4	5
52	Data from SOL tests do not help me to assess student achievement.	1	2	3	4	5
53	Data from SOL tests cannot help improve the district's schools.	1	2	3	4	5
54	Our schools have a vision to improve student achievement.	1	2	3	4	5
55	Some data that could help children learn are disregarded.	1	2	3	4	5
56	We are committed in all we do so that all children will learn.	1	2	3	4	5
57	We are encouraged to work together to investigate how to teach better.	1	2	3	4	5

Please describe any conditions that exist in the school district that allow you to use data better to improve student achievement and teacher performance.

Please describe any conditions that you may have encountered that preclude you from using data to improve student achievement.

List any other factors that you feel are necessary for a school to use data more effectively.

## Vita

Richard Byron Bishop

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1986 – 1990 University of California at Santa Barbara  
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